SPACE, MOTION AND METAPHOR IN ELECTROACOUSTIC MUSIC

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ABSTRACT

This submission discusses the development of a compositional language which is expressive of 'lived' experience with relation to the works on the enclosed compact discs, *Fallout, Nesting Stones, Invisible Crowds, Bath, Hidden Lives* and *Scan.* The main features of this language are a musical production of space which is mimetic of non-musical experiences of space, and the development of gestural metaphor. Through a process of metaphorical transduction, this links image schema derived from a variety of lived experiences of space and motion with the manipulation of richly associative sound material in order to express emotional and psychological experiences through the production of musical works.

The thesis starts by looking at changing concepts of space, the ways that we experience space using our senses, different types of space and the features and qualities of some of those spaces. These topics are then investigated in relation to musical composition and a variety of possibilities are discussed, some of which are related to aspects of the compositional practice in the works presented.

This is followed by a discussion of sound material and the use of various structuring devices to create sound worlds, both generally, in terms of contemporary practice, and specifically, in terms of the works presented. A survey of the possibilities of the compositional uses of motion and metaphor completes the consideration of the individual features of this compositional language. The final chapters of this thesis are devoted to the consideration of how the elements already discussed work together in a gestural metaphor and how its use as a structuring device develops and changes in the works presented.

SUMMARY

Chapter 1 provides an introductory background to changing concepts of space before concentrating on the ideas of Henri Lefebvre and of contemporary feminist academics. Lefebvre's ideas of perceived, conceived and lived space are investigated with regard to how space may be experienced through the physical senses, the mind and the body. This is followed by an overview of how space is described in terms of both categories of space and qualities and features of space.

In **Chapter 2** the possible compositional uses of different categories of space are investigated with specific reference to how they have been used and how they could be used in the production of musical space. There is an emphasis on the compositional uses that are mimetic of the non-musical experiences of space identified in the previous chapter.

Chapter 3 looks at some of the same categories of space as in the two previous chapters with specific reference to their use in the works presented.

Chapter 4 starts with a review of issues regarding the relationship of sound material and its source. The sound worlds of the works presented are then discussed. The remainder of the chapter is devoted to the use of anecdotal and narrative structures in the works.

Chapter 5 begins with an overview of concepts of motion in music and moves on to look at how non-musical experience of motion may be used compositionally through a process of metaphorical transduction. The motion features of both single and massed sound objects are investigated. The chapter ends with a discussion of motion mimesis in some of the works presented.

Chapter 6 is about how the combination of the specific aspects of the use of space, sound material, structure, motion and the desire to express aspects of personal experience work together as a compositional device which I have called a gestural metaphor.

Chapter 7 looks at the development of gestural metaphor in the works presented.

1. INTRODUCTION TO ASPECTS OF SPACE

1.1 Introduction

I started working in the electroacoustic medium because I was interested in the idea of being able to 'mould' and 'sculpt' sound in the space defined by a loudspeaker system. It was, however, some time before I began to develop a methodology for doing this and even longer until I developed any kind of satisfactory rationale. This thesis is about that development discussed in the light of both my artistic intentions and my compositional outcomes, with reference to the experiences, theories and practices of others.

In 1989 I was studying for an M.A at York University. I had chosen to go to York because there was a great deal of interest in sound in space in the Music Department[1]. During that time, however, I felt alienated by what I perceived as the culturally 'dominant' aesthetic of electroacoustic composition, and regarded it as disembodied, pyrotechnically virtuosic displays of abstract sound manipulation. I wished to work in the

> "more intimate, internalised domain of personal experience."
> (Smalley, 1992: 525)

Since then, every piece of work that I have produced has combined my interest in sound in space with my desire to express aspects of personal experience. The sound material has, by and large, been chosen from sounds suggested to me by those experiences. It has been structured so that on an emotional or symbolic level, to me at least, essential aspects of the experiences informing the pieces relate to aspects of the behaviour and interaction of the sound material. I have been motivated by

> " ... an urgent need to find a language that is inclusive of metaphors of experience. "
> (Waters, 1994 : 134)

[1] This manifested itself in experiments with ambisonic coding and decoding and with developments in the Composers Desktop Project.

Various strands and ideas recur in the works presented and I hope to show that my compositional practice has developed to act as a transduction of personal experience of world through the 'lived' experience of space.

> "The function of music is to enhance in some way the quality of individual experience and human relationships; its structures are reflections of patterns of human relations, and the value of a piece of music as music is inseparable from its values as an expression of human experience.
>
> The common factor is therefore the experience of the individual in society. If the functions, structure, and value of music can all be related to patterns of individual and social experience, we have the groundwork for a theory of music-making that can be applied universally."
>
> (Blacking, 1995 : 31)

1.2 Introduction to aspects of space

Before looking at the potential of space as a compositional parameter and its place in the compositions presented, I shall, in this chapter, investigate some more general aspects of space including influential theories of space, ways of perceiving space, types of spaces and space as related to symbol and metaphor.

Any investigation into the literature and current thinking about space will find that it is what Doreen Massey has called an "incredibly mobile concept" (Massey, 1994: 1). In the following investigation of space as a compositional parameter in my music I shall concentrate on ideas, concepts and references that are useful to this thesis. The kinds of space referred to are often aspects of the same thing, described in the varied languages of subject specialisms. I shall also consider lived practices and the symbolic meaning and significance of various spaces and spatialisations as relevant to the explanation and contextualisation of my compositional processes.

Space has, in the past, been thought of as an empty vessel, a container that can be filled by 'things', or, in the case of composition, silence waiting to be filled by sound. Merleau Ponty has observed that

> "Space is not the setting (real or logical) in which things are arranged, but the means whereby the positing of things becomes possible. This means that instead of imagining it as a sort of ether in which all things

> float, or conceiving of it abstractly as a characteristic that they have in common, we must think of it as the universal power enabling them to be connected."
>
> (Merleau Ponty, 1962: 243)

Grosz tells us that

> "The history of philosophy is strewn with speculations about the nature of space and time, which form among the most fundamental categories of ontology."
>
> (Grosz, 1995: 93)

Within the ideas of Plato, Aristotle and the concepts of Euclidean geometry, space is essentially thought of as something homogeneous, universal and regular as well as infinite and empty. These ideas dominated thinking about space until they were challenged by the advent of different ideas emerging in the 19th and twentieth centuries, including Einstein's theories of the relativity of space and time

> "... through the development of non-Euclidean geometries and post-Newtonian physics, not only does our everyday understanding of space and time change, but a proliferation of different models of space-time, different kinds of space with different properties circulate. None have a universally accepted scope nor domination of the whole field of geometry or physics ... This rich pluralism of representations is not necessarily aligned to the primacy of the visual (as in Euclidean geometry), nor to the perception of matter, but enables a multiplicity of (sometimes) incommensurable models of space and time to be explored."
>
> (Grosz, 1995: 97)

This plurality of mathematical views about the nature of space allowed other alternative conceptions of space to be mooted, and many of these new models and theories relate more directly to space as it is experienced, something that was lacking in these previous geometric, mathematical, philosophical and scientific interpretations. This work has been done by people working in many different subject areas, including anthropology, geography and philosophy and has changed the ways that people think about space and elevated that thinking to become a paradigm for a great variety of experiences.

The two models or theories of space that I would specifically like to investigate with regard to my compositional output are those of Henri Lefebvre as presented in *The Production of Space* (Lefebvre, 1991), and those developed by feminist

academics (Alcoff, 1996; Davis, 1997; Duncan, 1996; Grosz, 1995; Haraway, 1991; Irigaray, 1993; Massey, 1994) over the last ten years.

1.2.1 Lefebvre's ideas of social space

In "The Production of Space" (1991) Lefebvre aims

> "... to discover or construct a theoretical unity between 'fields' which are apprehended separately, just as molecular, electromagnetic and gravitational forces are in physics. The fields we are concerned with are, first, the *physical*-nature, the Cosmos; secondly, the *mental*, including logical and formal abstractions; and thirdly the *social*. In other words we are concerned with logico-epistemological space, the space of social practice, the space occupied by sensory phenomena, including products of the imagination such as projects and projections, symbols and utopias."
>
> (Lefebvre, 1991: 11-12)

Lefebvre is motivated to do this because

> "Epistemologico-philosophical thinking has failed to furnish the basis for a science which has been struggling to emerge for a very long time, as witness an intense accumulation of research and publication. That science is - or would be - *a science of space.* To date, work in this area has produced either mere descriptions which never achieve analytical, much less theoretical, status, or else fragments and cross sections of space. There are plenty of reasons for thinking that descriptions and cross sections of this kind, though they may well supply inventories of what *exists in* space, or even generate a *discourse on* space cannot ever give rise to a *knowledge of* space."
>
> (Lefebvre, 1991: 7)

Lefebvre's thesis is that all space is socially produced. He identifies three concepts of social space:

> **1. Spatial practice**
>
> "... which embraces the production and reproduction, and the particular locations and spatial sets characteristic of each social formation."
>
> (Lefebvre, 1991: 33)

This is 'real space' (Lefebvre, 1991: 14), the space that we walk about and conduct our daily business in,

> "... the spatial practice of a society is revealed through the deciphering of its space."
>
> (Lefebvre, 1991: 38).

The space of spatial practice space can be seen, or sensed.

2. Representations of space

> "... conceptualized space, the space of scientists, planners, urbanists... - all of whom identify what is lived and what is perceived with what is conceived...This is the dominant space in any society..."
>
> (Lefebvre, 1991: 39)

Conceived space, for example an architect's plan, is a representation of what someone thinks should be happening, a conceptualisation of a possible future project based on observations of spatial practice.

3. Representational space

This is

> " ... space as directly *lived* through its associated images and symbols, and hence the space of 'inhabitants' and 'users', but also of some artists ... who *describe* and aspire to do no more than describe. This is the dominated - and hence passively experienced - space which the imagination seeks to change and appropriate. It overlays physical space, making symbolic use of its objects. Thus representational spaces may be said ... to tend towards more or less coherent system of non-verbal symbols and signs."
>
> (Lefebvre, 1991: 39)

Representational spaces are the lived spaces that the individual experiences and the spaces of history, both of groups of people and of individuals.

> "Representational space is alive: it speaks. It has an affective kernel or centre: Ego, bed, bedroom, dwelling, house; or square, church, graveyard. It embraces the loci of passion, of action and of lived situations ... "
>
> (Lefebvre, 1991:42)

Lefebvre goes on to say

> "We may be sure that **representations of space** have a practical impact, that they intervene in and modify spatial *textures* which are informed by effective knowledge and ideology. Representations of space must therefore have a substantial role and a specific influence in the production of space. ... By contrast, the only products of **representational spaces** are symbolic works. These are often unique; sometimes they set in train 'aesthetic' trends, and, after a time, having provoked a series of manifestations and incursions into the imaginary, run out of steam".
>
> (Lefebvre, 1991: 42 bold emphasis added)

These three manifestations of social space, spatial practice, representations of space and representational space are seen by Lefebvre, however, as mutually dependent and inseparable. They all contribute to the production of space with varying emphases according to the society or period of history. **Representational spaces**, for example in the arts, can therefore only be produced in the light of current thinking about and practice of **representations of space**. These, in turn, will be related to the current **spatial practice** at any moment in a society's history and culture. It follows, therefore, that any representational space that may be made in the arts will be informed by the other two concepts of social space and by the modes of sensing associated with them.

How do Lefebvre's ideas relate to the space of the acousmatic music[2] concert? On one hand there is the physical space of the concert hall, a built manifestation of a representation of space conceived as a social listening space on the basis of the observed spatial practice of people getting together in groups to listen to music. On the other hand there is the virtual space of the piece of acousmatic music; the representation of perceived, conceived and or lived space in the piece; and the representational space of the piece. Finally there is the mental space the individual listener inhabits while listening to the work, a personally unique space influenced by a complex mixture of elements of reaction to the representation of space *in*, and the representational space *of*, the piece. This reaction that will be influenced by the listener's history and experience as well as the lived experience of being in the social space of the concert hall at that particular time.

In terms of the *composition* of acousmatic music, the methods used to represent perceived, conceived and lived space in a piece of acousmatic music (the representation of space) and the representational space of specific pieces of acousmatic music are two issues at the very core of this thesis.

---

[2] acousmatic music here meaning music played on loudspeakers with no other visible source of sound.

1.2.2 Perceived, conceived and lived space

Any representational space that may be made in the arts is informed by the

> " ... triad of the perceived, the conceived and the lived ... " [3]
> (Lefebvre, 1991: 39),

but lived, conceived and perceived experiences of space vary according to period of history, and surely, therefore, also according to physical location, social position, gender, sexuality, ethnicity and many individual variables. Perception of space, like conceived and lived experiences of space, is culturally dependent. There is no space that can be perceived in exactly the same way by everybody. Everything is mediated according to age, experience, culture, gender, sexuality and the variations between the unique experiences of individuals. Within this, however, groups of people, will share features with regard to the way that they perceive the world, in common.

The way that we understand and experience these lived, conceived and perceived experiences of space arises from a mixture of data gathered by all our sense mechanisms and modes of perception. These senses work together to form a mesh of impressions that we put together and order against known formula. In real life, in lived experience, all modes of perception are important for us to build up our picture of reality and spatial practice.

1.2.2.1 The role of the senses, body and mind

We pick up physical data through our five senses. Each of those senses, with the possible exception of the sense of **taste,** allows us to perceive different aspects of space .

The sense of **touch** is crucial in our operations with social spaces, physical spaces, architectural spaces and environmental spaces

> "... without sight a person can still operate with a high degree of efficiency in the world, but without the tactual sense it is doubtful that he can survive. We are always "in touch." ... at this moment we may

[3] In terms of the three concepts of social space identified by Lefebvre, spatial practice is the perceived, representations of space are the conceived and representational space is the lived.

> be feeling the pressure of the chair against our posterior ... Touch is the direct experience of resistance, the direct experience of the world as a system of resistances and pressures that persuade us of the existence of a reality independent of our imaginings."
>
> (Tuan, 1974: 8)

The sense of **smell** or olfactory space, in common with aural space, cannot be blocked out. Smells penetrate us like sounds do and, as with sound, it is not always possible to recognise the source of an aroma. In terms of our own physical space or body space we cannot control the boundaries of our own bodies in terms of smell, we emanate odours whether we like it or not. Although it is difficult to imagine that the senses of smell alone can tell us much about the details of a particular space it can tell us about certain characteristics, for example, whether it is crowded with people, contains flowers etc. In the Western world, our olfactory organs are either not well enough developed or not enough of our world is scented for us to be able to gather much data through the nose, but Tuan tells us that for the Aivilik Eskimo living on Southampton island

> "... space is not pictorial or boxed in, but something always in flux, creating its own dimensions moment by moment. He learns to orient himself with all senses alert. He has to during certain times in winter when sky and earth merge and appear to be made of the same substance. There is then "no middle distance, no perspective, no outline, nothing that the eye can cling to except thousands of smoky plumes of snow running along the ground before the wind - a land without bottom or edge." Under such conditions the Eskimo cannot rely on the points of reference given by permanent landmarks: he must depend on the shifting relationships of snow contours, on the types of snow, wind, salt air and ice crack. The direction and smell of the wind is a guide, together with the feel of ice and snow under his feet. The invisible wind plays a large role in the life of the Aivilik Eskimo. His language includes at least twelve unrelated terms for various winds. He learns to orient himself by them. On horizonless days he lives in an acoustic - olfactory space."
>
> (Tuan, 1977: 11)

The sense of **hearing** or aural perception, like olfactory perception, can provide us with information about the world beyond the visual. It provides us with detail about the characteristics of many different kinds of space, for example:

Social space
- Is the sound dense or intermittent?
- Is the space crowded?

Where are the people from?
How loud are their voices?
What kind of power relationships are in existence?

Architectural space
What kind of material is the building constructed from?
Is it full or empty?
What size is it?

Environmental space
What kind of environment is it? Is it in the city? Is it in the country?
Are cars or people or birds present?

Acoustic space
What are the reverberation characteristics?
What is the apparent size of the space?
What are the frequency characteristics of the space?
What kind of materials are present in the space?
How absorbent are they?

Unlike the eye which

> " ... focuses, pinpoints, abstracts, locating each object in physical space, against a background, the ear, however, favours sound from any direction. We hear equally well from right or left, front or back, above or below, if we lie down, it makes no difference, whereas in visual space, the entire spectacle is altered. We can shut out the visual field by closing our eyes, but we are always triggered to respond to sound."
>
> (Carpenter and McLuhan, 1970: 67)

It is generally thought that information perceived through the sense of hearing is a stronger emotional experience than visually received information, that it has more immediacy and is more directly linked to the emotions

> " ... tone penetrates into me, overflows the barrier, makes me conscious not of distance but of communication, even of participation..."
>
> (Zuckerkandl, 1969: 337).

Visual perception usually involves some sense of distance between the viewer and the object. As a result the sense of **sight**, has often been thought of as giving us objective information without involving the emotions. There is, certainly, an idea of standing apart from something, looking, detached and uninvolved, and things seen can be more distant than things heard, smelt or felt.

In *Re-corporealizing Vision* Nast and Kobayashi (1996) have presented a

history of how the visual came to dominate the other senses and has become associated with the masculine, disembodied and detached way of interpreting the world. This is contrasted with the experience of the body and body knowledge.

1.2.2.2 The role of the body

Body experience is not purely the sum of the total data gathered by all the senses. It incorporates ideas of the self and consciousness of self.

In his consideration of the body, Lefebvre says that social practice presupposes the use of parts of the body for various functions including work, reproduction and sensing. This is very different from the representations of the body which are conceived from knowledge of anatomy, relations with nature or with its surroundings and also from the

> "Bodily lived experience ... The 'heart' as *lived* is strangely different from the heart as thought and perceived. "
>
> (Lefebvre, 1991: 40)

In recent years there has been a re-evaluation of the role of body experience as a way of perceiving and understanding the world. Since the time of Plato mainstream Western thought has, generally, seen the body as inferior to the mind and the experience of the body, or the body knowledge, has been mistrusted and ignored. The idea of "situated knowledge" referring to body knowledge and the experience of the body has been adopted and developed by feminists, particularly Donna Haraway and Sandra Harding, as a substitute for

> "decontextualized, disembodied, ungendered, ' objective' knowledge' "
>
> (Duncan, 1996: 3)

Alcoff (1996) has outlined how feminist academics are rethinking the role of bodily experience in contemporary theory as follows:

> "a) the mind is not in fact separable from the body;
> b) from which it follows that our mind has never been separated from the body;
> c) from which it follows that our dominant conceptions and ideals of reason have been connected to bodies, have been the expressions of bodily concerns or needs and reflections of embodied ways of being,

> and have had other interesting relations to the body that we have yet to discover;
> d) and which also suggests that we need to rethink the entire opposition that has been drawn heretofore between reason and its 'Others'. Others which all, in one way or another, have to do with the body: as rhetoric, irrationality, dreams and so on."
>
> (Duncan, 1996: 17)

The re-evaluation of the role of the body and body experience has also inevitably led to new thinking about space and ways of experiencing and producing space.

> "Social relations, including, importantly, gender relations, are constructed and negotiated spatially and are embedded in the spatial organization of places."
>
> (Duncan, 1996:4-5)

1.2.2.3 The role of the mind

In addition to these physical ways of perceiving different aspects of space through the senses and the body, there is a role played by **mental** perception. This incorporates **memory,** a feature that is often triggered by a smell, a sound, a piece of music and as such is a crucial factor in the perception of all kinds of space that we have mentioned; and **imagination**, also something that relies on information gathered by other modes of perception which is then reconfigured to create new spaces.

1.3 Types of space

> "Space is a social morphology: it is to lived experience what itself is to the living organism, and just as intimately bound up with function and structure."
>
> (Lefebvre, 1991: 94)

Many of the manifestations of this space of social practice, representations of space and representational spaces fall into distinct and varied categories. Some of these categories may be aspects of one particular located space and could exist simultaneously; a corporate bank, for example, may be a social space, an architectural space, an aural space and a visual space and have quite different characteristics and attributes according to which category it is being assessed in. Some of the labels given to kinds of space are different names for the same things,

labelled according to the preoccupation or discipline of the person using the term.

> "The search for a science of space has been going on for many years, and this from many angles of approach: philosophy, epistemology, ecology, geopolitics, systems theory (decision making systems; cognitive systems), anthropology, ethnology, and so on. Yet such a science, forever teetering on the brink of existence has yet to come into being ... the reason for it is not far to seek. Knowledge of spaces wavers between description and dissection. Things in space, or pieces of space, are described. Part spaces are carved out for inspection from social space as a whole. Thus we are offered a geographical space, an ethnological space, a demographic space, a space peculiar to the information sciences....we hear of pictorial, musical or plastic spaces ..."
>
> (Lefebvre, 1991: 91).

It is, however, useful to investigate some of these categories of space with regard to how they, or rather the experience of them, may be used in the composition of acousmatic music.

The types of space that may be of particular interest include **mathematical** space. Lefebrve refers to the logico-mathematical categories, which are abstract and non-experiential representations of space in terms of a mathematical or geometric model.

Abstract mathematical space may be one of the experiences used to generate **mental or imaginary** spaces. Mental space, however, may be produced in response to a huge range of experiences and is active in the production of both representational spaces and representations of space and may be looked at as a kind of 'space experience melting pot' where all lived experiences gathered through all modes of perception and lived experience are filtered according to the unique experiences of the individual. This can then be called upon in the production of an imaginary space that can be experienced by that individual or made manifest in the form of some sort of artefact or production of space that can be shared by many. In this kind of activity, the production of a piece of art, the individual potentially has more control of the outcome than in other kinds of mental space for example the space of dreams.

The spaces of the **environment** whether they are the spaces of hills,

valleys, rivers, cities, houses or other architectural spaces, are all, on the other hand, experienced through the interaction with the **body**.

The re-evaluation of the role of the body and body experience in feminist theory as mentioned in the previous section (1.2.2) gives rise to a number of considerations of space. Stuart Hall has observed some of the ways in which feminism has been important in disrupting the idea of a centred subject:

> " 1. It questioned the class distinction between 'inside' and 'outside', 'private' and 'public'. Feminism's slogan was 'the personal is political'.
> 2. It therefore opened up to political contestation whole new arenas of social life - the family, sexuality, housework, the domestic division of labour, child rearing etc.
> 3. It also exposed, as a political and social question, the issue of how we are formed and produced as gendered subjects. That is to say it politicized subjectivity, identity and the process of identification (as men / women, mothers / fathers, sons / daughters)."
>
> (Hall in Duncan, 1996: 34)

The kind of spaces that feminist theory has concentrated on are different from those discussed in mainstream cultural theory. They are inside, **private** spaces as opposed to outside, **public** spaces. This has brought many activities that define those private, inside spaces into critical debate, as these activities are directly to do with women's experience. As feminist geographers have documented, women have the most spatially restricted lives and if the body is the main way of women perceiving and understanding the world, the space of the body is an important tool for the expression and communication of that. In general, women's experience of space is different from that of men and therefore their ways of mapping space will be different.

> "In Western society the mental map of a housewife with small children is likely to differ from that of her husband. Every workday the circulation routes of the married pair rarely parallel each other except in the home stretch. On a shopping expedition the man and woman will want to look into different stores. They may walk arm in arm but they do not thereby see and hear the same things."
>
> (Tuan, 1974 : 62)

Visual space is bounded and static, providing a frame or matrix for objects. This is in direct contrast with **acoustic** or **musical** space, which is a

> " ... flowing space ... a placeless depth, surrounding the hearer or more properly directed towards him, moving towards him from all about. The depth of this space is not the depth which makes up the

> three dimensions of visual space, height, width, depth, there are no such distinctions in auditory space."
>
> (Zuckerkandl, 1969: 278)

Auditory space flows to the hearer, it comes *from* the distance *to* me, rather than staying *at* a distance *from* me as in visual space. Everyone is part of, and embraced by, musical space and this is what makes auditory space so different from visual space. Another difference between auditory and visual space is that

> " ... musical space, unlike pictorial space, is usually presented in a perspectiveless manner."
>
> (Walton, 1997: 69-70)

This is not to suggest that there can be no perspective in music but that the perspective of the relationship between the audience and the artifact is essentially different in music and visual art. Walton goes on to say that when he enters an imaginary world inspired by a picture he has a perspectional relationship with the objects depicted in that picture, for example, a mountain would tower over him. This, he claims, is at odds with the perspectives created in imaginary worlds by the spatiality of music.

Chion's (1990) work on sound with relation to film suggests that point of audition is dependent on the visual image. The listener or viewer associates a picture of a person with acousmatic sounds which causes them to think that they can hear what the person on film is hearing. Beck (1998) applying these principles to the art of radio drama states that shifts of point of listening can be made through acoustic shifts and far and close microphone techniques. The examples that he gives, are, however, more applicable to radio drama where a strong image is being set through a variety of sonic cues, including the use of words. It is difficult to get the same ideas of perspective from music, as we get from visual space, film or even radio drama without the added cues given by visual image or text because, as we have already mentioned, auditory space is not separate from us, it is around us and flowing into us. The point of perspective is listener centred, and each listener brings to that perspective a different range of formative experiences and preconceptions. The

mental space that the individual listener inhabits while listening to a piece of music, is produced by the combination of the auditory space and many other factors both personal and social

> " ... spatiality is socially produced and, like society itself, exists in both substantial forms (concrete spatialities) and as a set of relations between individuals and groups, an 'embodiment' and a medium of social life itself."
>
> (Soja, 1989: 120)

1.4 Space: qualities, symbolism, associations and metaphors

All space can be said to be socially produced, but space and spaces can be described in a multitude of different ways according to the context.

Spaces can be described in many ways, for example, empty, infinite, layered, complex, full, overcrowded, small, large, static, flowing, dynamic, three-dimensional, ordered, having a multiplicity of directions, formless, occupied by objects, related to the world of bodies, having geometric relations, boundaried, absolute, open, closed, enclosed. Many of these qualities have widely held associations that go beyond their merely descriptive qualities.

In his book *Topophilia, A Study of Environmental perception, Attitudes, and Values,* Tuan (1974) suggests that 'open' and 'closed' are spatial categories meaningful to many people.

> "Agoraphobia and claustrophobia describe pathological states, but open and enclosed spaces can also stimulate topophilic feelings. Open space signifies freedom, the promise of adventure, light, the public realm, formal and unchanging beauty; enclosed space signifies the cozy security of the womb, privacy, darkness, biological life."
>
> (Tuan, 1974: 28)

He goes on to ask

> "What other spatial characteristics can be said to excite emotions that are widely shared? The vertical versus the horizontal dimension? ... Vertical elements in the landscape evoke a sense of striving, a defiance of gravity, while the horizontal elements call to mind acceptance and rest. Architectural spaces are capable of evoking certain types of emotion ... we tend to associate closed lids and shallow plasticity with feelings of fixity and inhibition; open pavilions and deep plasticity with the feeling of flexibility and expansion; deep axis with energy release and shallow axis with energy conservation. The existence of a kinesthetic relationship between certain physical forms and human feelings is implied in the verbs we use to describe them: for example, mountain peaks and man made spires "soar", ocean

> waves as well as architectural domes "swell", arches "spring", landscapes "unfold", Greek temples are "calm" and Baroque facades are "restless"."
>
> (Tuan, 1997: 29)

Tuan is talking about three things here:

1. symbolically meaningful spatial descriptors, in other words qualities of space that have a widely held symbolic interpretation like open and closed;

2. the commonly held emotional and other associations found in different categories of space and

3. spatial metaphor.

These symbolic qualities of space such as open, closed or ordered are, of course, a tool in the production of what Lefebvre describes as representational space. There is symbolism to be found in commonly repeating spatial patterns for example, a circle with a dot in the middle could be interpreted as the juxtaposition of central and peripheral activity, reflected in and influencing all kinds of spatial practice, representations of space and representational spaces from the organisation of the home, to cosmological systems, to political organisation.

> "A symbol is a repository of meanings. Meanings arise out of the more profound experiences that have accumulated through time."
>
> (Tuan, 1974:145)

Some symbols are peculiar to individuals and cultures but many are specific to the lived experience of being human and, as such, gain emotional and other associations from the experiences of different categories of space. These associations are often expressed in terms of spatial metaphor.

> " The essence of metaphor is understanding and experiencing one kind of thing in terms of another."
>
> (Lakoff and Johnson, 1980: 5)

Spatial metaphor can work in two ways. It can be used to describe our experience of space, or of a particular space, in terms of something else, or it can describe our experience of something else in terms of space. We are very used to articulating like this linguistically. In fact, we are constantly using what Lakoff and

Johnson (1980) call *orientational metaphors*, using terms from spatial orientation to describe something else, often emotional or physical states. These are based in our physical and cultural experience of living in our own bodies in the world and, as such, serve as a vehicle for understanding a concept by virtue of its experiential basis, for example:

> I'm feeling *low*; You're in *high* spirits; he *dropped* off to sleep; I'm just about *on top of* everything; He came *down with* the flu; Every things *under* control; That *raised* the level of the discussion.

We are equally at home with describing space in terms of something else as in the examples given by Tuan above of the soaring mountain peaks and man made spires, swelling ocean waves and architectural domes and unfolding landscapes.

These metaphors and symbols relate to located space as well as qualities of space. In *The Poetics of Space* Bachelard (1969) talks about the symbolism invested in inhabited spaces, the home as a nest, the wardrobe or chest of drawers as a repository for memories and the house as a symbol and metaphor for the psyche.

The following two chapters contain an investigation of how the aspects of space that have been explored here could be used in musical composition and, more specifically how this has been manifested in the works presented in this submission .

2. THE POSSIBILITIES OF SPACE AS A COMPOSITIONAL PARAMETER

This chapter is an investigation into the possibilities offered by the compositional use of space for creating music, with particular reference to the aspects of space that were introduced and discussed previously.

The investigation will start with a look at the use of space as a compositional parameter in work where there is a "pure" musical discourse, that is a use of space which does not *intentionally* refer to, or represent, any apparently non-musical experience of space. It has, however, already been suggested that all experiences of space are grounded in social practice and in lived experience, including the production of musical space. This means that a compositional use of space in music that does not refer to or represent any other spatial experience apart from musical space is impossible. There are, in fact, very few examples of the compositional use of space that are entirely non-mimetic of spatially lived experience. When used in composition space usually does, in some way, refer to lived experience and, as such, can be perceived as being representational or referential to something outside the musical space produced. This is not, however, always a deliberate or conscious compositional strategy on the part of the composer but, nevertheless, involves the production, in a musical work, of a representational space or a representation of space based on lived experience of social practice. This is referred to as **spatial mimesis**, meaning that the compositional use of space is conceived and representations of space in compositions are consciously or unconsciously influenced by this experience of spatial practice.

The representational spaces that are constructed, sonically, in a musical work, can relate to many different manifestations of spatial practice ranging from located (external) space to mental (internal) space and can draw on many different senses, or ways of perceiving, transduced into a sonic production of space. Furthermore, the use of spatial mimesis in a composition can be accompanied by a

mimetic or non-mimetic[4] discourse in terms of the sound objects used.

The investigation of compositional possibilities in this and applications in the following chapter concentrate on space. A consideration of sound material will appear in Chapter 4.

2.1 Space and spectro-morphology

In *Spectro-morphology and Structuring Processes* Smalley (1986) discusses a compositional use of space which is used to create a musical discourse which reasserts the "primacy of aural experience in music." (Smalley, 1986: 62). Smalley identifies five dimensions to the consideration of space. The first four of these are:

spectral space

time as space
referring to the perception of spectral motion over time

resonance
the inner space of the sound with 'resonance structures' that can be changed and transformed, and spatial articulation in composition

outer space
where a sound structure interacts with the properties of the acoustic environment it inhabits.

Smalley develops his observations in a diagram (Smalley, 1986:91) which he explains as follows:

> "We recognise a *spatial setting* which possesses *dimensions* either *confined* by reflecting surfaces or left more *open* as in the environment. A *realistic space* is a plausible setting while a *fictitious space* or change of spaces could not exist in reality. The setting is deduced from spatial behaviour which is able to encompass an immense repertory of motion, but not independently of spectro-morphological design and motion. "
>
> (Smalley, 1986:90)

Within this spatial setting there are

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[4] The terms mimetic and non - mimetic are used here as Emmerson (1986) uses them "to denote the imitation not only of nature but also of aspects of human culture not usually associated directly with musical material" (Emmerson 1986: 17) both in terms of 'timbral' and 'syntactic' mimesis.

> "two fundamental structuring strategies associated with multi-level focus and the experience of temporal unfolding of structure."
> (Smalley, 1986:81)

These are *gesture*, as in spatial trajectories, and *texture*, as in the spatial distribution of components.

The fifth consideration identified by Smalley concerns the transference of composed spatial articulation into the listening environment, a new acoustic space which also affects the musical substance and structure. This has already been mentioned with regard to the layering of spaces in the acousmatic music concert (1.2.1). Smalley's emphasis in considering this is more to do with the efficacy of the loudspeaker system and the physical acoustics of the listening environment in creating a satisfactory listening space and is not so relevant to *this* discussion of the compositional use of space.

Some of Smalley's concerns do, however, relate to the compositional use of space and, as such, may suggest to the composer, the following compositional parameters: the manipulation of the evolution of spectral motion over time; the manipulation of internal resonant structures; and the creation of spatial setting by the articulation of motion and spatial behaviour through the parameters of *gesture*[5], and *texture*[6].

Smalley does not, at this stage, offer any reasons or aesthetics for the use or employment of these techniques except that the use of the space field can be used to reinforce spectromorphologies and structural relations in the sound objects in a purely aural discourse. In a later article (Smalley, 1992) he develops some of his ideas about gesture and suggests that,

> " ... if the listener does not discover some gesture- field attributes in a musical work then the music will seem to be distanced from the more intimate, internalized domain of personal experience ... "
> (Smalley, 1992: 525).

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[5] spatial trajectories which may relate to physical, visual or psychological experiences.
[6] referring to internal patterns.

There will be a further discussion of gesture both with regard to composition and its roots in embodied experience in Chapter 5.

2.2 Spatial mimesis

Spatial mimesis has already been defined as using a lived experience of space, the space of social practice, in the production of music. This means that the space may be conceived, and representations of space in compositions may be influenced, by the perception of spatial practice, consciously or unconsciously, and that the representation of space or representational space produced in or through the music is representational of, or referential to, something outside itself.

The remainder of this chapter investigates some of the compositional possibilities that have been, and may be, afforded by the use of various categories of spatial mimesis. These relate to some of the manifestations of social space, representations of space and representational spaces that were identified as types of space in the previous chapter. In the following chapter I shall discuss the compositional use of spatial mimesis in some of my work.

Later chapters of this thesis will develop the ideas regarding spatial metaphor and symbolism that were introduced in the previous chapter and look at the combination of the compositional use of spatial mimesis with other elements, particularly the choice of sound material.

2.2.1 Mathematical spatial mimesis

This uses our understanding of mathematical space, for example, the space of two- or three-dimensional geometric or mathematical models and patterns. A possible application of the compositional use of mathematical spatial mimesis is the development of spatial motif, according to abstract mathematical schema in which spatial elements, phrases or patterns, are used to articulate sound objects in distinct positions in space or with a distinct motion path. In a spatial motif the *position* of each

part of a musical phrase is as important as the rhythm, melody or any aspects of the composition.

Stockhausen has used and explored space, often as an independent parameter, in his music. He can be largely credited with the introduction of loudspeaker and electroacoustic composition where space is an integral musical component. Stockhausen says, of his own composition *Gesang der Jünglinge,*

> " ... here for the first time the direction and movement of sounds in space was shaped by the composer and made available as a new dimension in musical experience."
>
> (Wörner, 1963: 41)

The space that Stockhausen is using is primarily the space of mathematical spatial mimesis. *Gesang der Jünglinge* uses five groups of loudspeakers surrounding the audience, of this, Stockhausen says

> " The speed of the sound, by which one sound jumps from one speaker to another, now became as important as pitch once was. And I began to think in intervals of space, just as I think in intervals of pitches or durations. I think in chords of space."
>
> (Cott, 1974: 87)

In *Gruppen*, three, and *Carré,* four ensembles are installed in separate places in order to separate the material played by each. Thus Stockhausen

> "postulates the adoption of spatial direction, easily serialised as the new parameter in music. He claims that by establishing exact proportions, analogous to durational ratios, between various positions on the circle, it is possible to create 'the scale of localities corresponding to the scales of pitch, duration, timbre and loudness' ".
>
> (Harley, 1998: 155)

In 1958 *Poème electronique* by Varèse, was played over 425 loudspeakers at the World Fair in Brussels. Varèse had long been interested in

> "a sense of sound projection in space by means of the emission of sound in any part or in as many parts of the hall as may be required by the score."
>
> (Manning, 1993: 14)

Although Varèse seems to be most engaged with the use of abstract space to form a non-mimetic spatial discourse, this is most likely based on mathematical spatial

mimesis. The categorisation of the use of space in the work of Stockhausen and Varèse is, of course, more complex and subtle than this and can also be said to employ architectural and social spatial mimesis as discussed below.

Mathematical spatial mimesis could also be employed in the creation of what might be called 'sonic sculptures', the aural manifestation of mathematical forms originally experienced through the visual or haptic senses.

> "The musical ideas of postwar avant-garde music referred to spatiality in three main ways: (i) in a geometric sense, because music was conceived as consisting of points, blocks and shapes presented in a space of two or three dimensions based in pitch and time (e.g. Webern's music interpreted by Ligeti and Eimert); (ii) in a general mathematical sense, because features of sound were separated into 'musical parameters and manipulated by spatial means (e.g. the use of vector space by Xenakis); (iii) in a physical sense through the use of spatialisation in performance space."[7]
>
> (Harley, 1998: 159)

2.2.2 Architectural spatial mimesis

We experience many kinds of architectural space, located and non located, public and private, urban and otherwise. Architectural space could be defined as the space of man-made enclosures. These are always social spaces and often highly significant, on a personal level, to individuals, or on a social level, to a whole society, or sector of society.

Much of our experience of architectural space is gathered though the aural space related to it and there is a strong relationship between our experience of architectural space and our experience of aural space.

> "One of the best examples of the auditory system working beyond our conscious control is simply the decoding of the feeling of the room we are in. We would know roughly the size of any room, where the nearest walls were, even a good idea of its furnishing - its absorption - in the dark."
>
> (Emmerson, 1998: 137)

Architectural space, in common with environmental space, has qualities which can be simulated, recreated, borrowed or even captured to create imaginary aural

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[7] Harley goes on to ask

architectures and sonic landscapes. Sound recordings made in existing architectural spaces, by sound artists such as Jake Tilson, have captured the aural features and thus some of the architectural and social aspects of those spaces.

The techniques of sound diffusion in space, developed for the live performance of acousmatic and electroacoustic music, can emphasise the architectural elements of the work over the stereo 'fixed' form that is likely to be in its recorded manifestation. The gestures that are used in diffusion may well be described in terms of architecture, for examples, 'arches of sound', and, as such, the diffused piece may well succeed in transcending the physical architecture of the performance venue.

It is, of course, standard practice in the recording industry to create architectural/spatial mimesis with the use of artificial effects and processes such as reverberation and delay suggesting that a recording was made in a space other than the recording studio.

The compositional use of architectural spatial mimesis which calls on experiences of private architectural spaces such as houses, may have very strong metaphorical and symbolic qualities and associations which are less a feature of their architectural qualities than of their social qualities. This will be discussed later in this thesis, particularly with reference to *Hidden Lives,* one of the works presented.

2.2.3 Environmental spatial mimesis

As with our experience of architectural space, much of our experience of environmental space is gathered though experiencing the aural space related to it, and there is a substantial body of sound work that concentrates on capturing and releasing recordings of specific or located environments. One aesthetic strategy behind this is in order to focus the listening attention on the aural qualities - and thus give clues as to the other qualities - of a place which is normally taken for granted.

"How can one hear a triangle, or an oval? How can one distinguish a rectangular sound shape from a polygon? ... yet, many composers in the 1950s and 1960s attempted to create fixed spatial shapes out of fluid spatiotemporal sounds." (Harley, 1998: 159)

These recordings may be presented unmodified as captured, or modified in some way, by means of studio processing or a textual commentary[8]. Another aesthetic motivation might be to provide a historical document of place in a time of fast-changing natural environments for a multitude of reasons from the archival to the political. [9]

R. Murray Schafer (1977) has done much to bring the relationship between sound and the natural world to our attention. His identification of the hi-fi and lo-fi[10] landscapes are at core of the campaigning movement of acoustic ecology along with associated areas of noise pollution and sonic design and have informed many studies of Vancouver and its environs and other natural soundscapes.

Trevor Wishart (1985, 1986, 1996) has written extensively on the production of sonic landscapes. In his view the nature of the environmental spatial mimesis employed in the production of a sonic landscape relates to two main parameters: the recreation or the capture of the acoustic properties of the environment through the parameters of resonances, reverberation times and frequency information; and the disposition of sound objects within the space and their relationship to each other in terms of spatial positioning, overall movement and individual movement, and presumably, density and volume, marking the sonic landscape as a hi -fi or lo-fi landscape, in Schafer's terms. These aspects of environmental spatial mimesis combine with the sound material in the sonic landscape to create tension, ambiguity or agreement.

Wishart calls both spatial features of the landscape and sound objects that are within the landscape that are meant to be recognised (whether or not originating to that source in reality), *real*, and those that are not from a recognised source, time or place *unreal*. The tension in a sonic landscape is created from this juxtaposition of real and unreal features and detail. There are four possible variables: real objects /

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[8] For examples *Kits Beach Soundwalk (1989)* by Hildegard Westerkamp found on *Transformations* (empreintes DIGITALes: IMED 9631).

[9] Such as in the recordings found on *The Vancouver Soundscape 1973 and Soundscape Vancouver 1996* (Cambridge Street Records CSR - 2CD 9701)

[10] " The hi - fi soundscape is one in which discrete sounds can be heard clearly because of the low ambient noise level. ... In a lo - fi soundscape individual acoustic signals are obscured in an overdense population of sounds." (Schafer 1977: 43)

real space; real objects / unreal space; unreal objects / real space and unreal objects / unreal space[11], but only the categories that include real space are of interest here.

Of these, the first category of real objects / real space recreates, simulates or captures an existing and recognisable environment as far as possible within the constraints mentioned above. Its overriding aesthetic is its aural realism, but it is not always the aural equivalent of the real aural event, rather it is a sound work that has elements of environmental spatial mimesis.

> "... imagine that, by appropriate editing and mixing procedures, we are able to animate a duet between a howler monkey and a budgerigar or a whale and a wolf; we have a landscape in which the sound-sources are real and the perceived space is real, yet the relationship of sound-images is impossible. This bringing together of normally unrelated objects in the virtual space created by loudspeakers is closely parallel to ... surrealism, ... I therefore propose to call this type of imaginary landscape *('real sounds / real space') surrealist*."
>
> (Wishart, 1996: 146-147)

Even though in some sound recordings such as those of the Vancouver soundscape artists or of wildlife recordist Chris Watson[12] there has, as far as we know, been a genuine attempt to capture the natural production of aural space and produce from it another aural space, the vagaries of the microphone used, microphone placement, recording medium, studio editing and many other factors mean that it is impossible to produce an exact aural reproduction of the original or real aural experience in the form of the second aural experience. It is, in fact, doubtful whether it is possible for an individual to produce something of this nature which has not been filtered, and influenced, by their eye, ear and experience.

The combination of unreal objects / real space uses a environmental spatial mimesis which is at odds with the sound objects used. The acoustic properties, disposition and relationship of sound objects within the space are real in that they are in mimesis of a located space, be it a geographically located place or a topographically located space, such as a moor or a beach, but the sounds do not relate to the same located space.

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[11] This is not, strictly speaking one of Wishart's categories

> " ... we have established the acoustic space of a forest ... then position the sounds of various birds and animals within this space. ...Let us now begin to replace the animal and bird sounds by arbitrary sonic objects. ... At some stage in this process we begin to perceive a different kind of landscape. The disposition of the objects remains realistic ... yet the sound-sources are not real in any sense of the word."
>
> (Wishart, 1996: 146)

There are, of course, two combinations which do not make compositional use of real environmental spatial mimesis. This is the compositional use of environmental spatial mimesis that is not related to a particular located space but to aspects of different spaces and is therefore, according to Wishart's definition, *unreal*, as the spatial features of the landscape are not from a recognised source, time or place. This does not really meet the definition of environmental spatial mimesis and will not be discussed here.

2.2.4 Social spatial mimesis

Whilst we can acknowledge that *all* space is social space, and is socially produced, as previously discussed, it is also the space where we interact and observe interaction in many different arenas whose rules and boundaries are fixed but invisible. Experience of this social space and social practice will vary according to many factors including the gender, race, class and life experiences of the individual.

Social space may be experienced through a variety of senses, physical and mental, including memory or imagination, and can encompass the social spaces of political power, public space, private space, children's games and informal socialising as well as more formal social structures.

In some ways social spatial mimesis offers many compositional possibilities because social space is so richly endowed with recognisable spatial practices. An example of this is found in antiphonal[13] music which deploys acoustic space to create effects such as echo and timbral changes. This is primarily compositionally based on the social spatial mimesis of a conversation between two people, and calls on both

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[12] For example the recordings on *Stepping into the Dark* Chris Watson (1995) (Touch TO:27).

experiences of social space and metaphors of conversation and interplay and, to an extent, architectural space by highlighting the features of the physical location.

Antiphonal composition most famously flourished in the Baroque and Classical periods at St. Marks Cathedral, Venice, where the two organs and their associated vocal and instrumental choirs in separate choir lofts provided inspiration to Adrian Willaert to exploit the separate physical positions of the performers in order to use the architecture of the cathedral to create antiphonal effects. These compositional techniques were developed by later Venetian composers including the Gabrielis to create effects including timbral changes and echo effects that could only be achieved through the placement of choirs and groups of instrumentalists. Antiphonal composition reached its peak in the seventeenth century, although J.S. Bach still employed antiphonal choral effects in the *St Matthew Passion* in the eighteenth century.

2.2.5 Mental (emotional and psychological) spatial mimesis

Mental space incorporates a number of experiences of space. On the one hand there is the imaginary space referred to earlier (p.20) which is produced from a huge range of individual and collective experiences and may be made manifest in the deliberate production of a space such as an art work of some kind or in the uncontrolled production of space such as in a dream or hallucination. On the other hand there is internal emotional space, the space of the feelings. Our experience of this emotional or psychological space has its own attributes and distinct characteristics separate from both the related space of the imagination which may feed it and the space of the body (physical spatial mimesis) which may undergo related experiences. While imaginary space, in general, will be produced from elements of all the other experiences of space and have characteristics in common with them, the mimetic use of emotional or psychological space is likely to be informed by a more 'real' or directly lived experience. Everyone has experience of this kind of

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[13] Antiphony : "Music in which two or more groups of performers are separated to create special

internal mental space. This is the space where we go to be private and the space which is affected by the stresses and strains of our lives. This emotional and psychological space is something that most composers would hope that their music would relate to in some way, but will not necessarily use the experience as an integral compositional parameter. It has much in common with the kind of experiences of space discussed below with regard to physical spatial mimesis but has additional features that can be conceptualised in terms of internal emotional dynamics. Using this mental experience of space as an element of composition will involve some sort of metaphorical transduction of this experience as we shall discuss in later chapters.[14]

2.2.6 Physical spatial mimesis

This compositional use of space calls on and uses the experiences of space gained through the physical act of living and moving *in* and being *of* our bodies,

> "the individual situates his body in its own space and apprehends the space around the body"
>
> (Lefebvre, 1991: 212).

It can, therefore, incorporate both physical and mental experiences and while, everybody could be said to have physical experiences of space in common purely though the reality of being human, those experiences will be personal and variable from individual to individual.

> " Bodies are not generic but bear the markers of culturally-constructed difference. Understanding what embodiment means to individuals depends on being able to sort out how sexual, 'racial' and other differences intersect and give meaning to their interactions with their bodies and through their bodies with the world around them. Conditions of embodiment are organised by systemic patterns of domination and subordination, making it impossible to grasp individual body practices, body regimes and discourses about the body without taking power into account."
>
> (Davis, 1997: 14)

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effects of echo, contrast etc." (Sadie and Latham1985: 534)

[14] It is also likely to result in work that has an anecdotal structure, that is the explicit compositional intent to communicate an aspect of intimate internal experience through the production of a piece of work and to try and express a unique psychological or emotional experience through the production of aural space. Anecdotal structure is discussed in detail in Chapter 4.

The compositional use of bodily experience or physical spatial mimesis will use, in addition to many of the parameters that we have described above, the bodily experience of motion - that is the process or act of change either inside or outside the body - and gesture in the creation of a musical work. This could include the composer imposing motion, which is mimetic of that experienced by the physical body, on a sound object or a group of objects in the space defined by the loudspeaker system. Indeed, this can only be achieved in technologically-based music made to be reproduced over such a system. In acoustic pitch-based music, the parameters of pitch, timbre, time, dynamic shape or envelope and place can be specified by the composer but, unless there is technological interference, location is dependent on where the instrumentalist is positioned. There are, however, other kinds of motion, particularly with regard to changes in dynamics, pitch, energy or rhythm. These are not motions through space and will be discussed in Chapter 5.

Lefebvre sites gesture in the space of social practice. Every society has gestural systems. The most sophisticated gestural systems, those of Asian dance for example, bring into play all segments of the limbs, even the fingertips, and invest them with symbolic (cosmic) significance.

> "Gestural systems embody ideology and bind it to practice. Through gestures, ideology escapes from pure abstraction and performs actions (for example the clenched fist salute or the sign of the cross). Gestural systems connect representations of space with representational spaces..."
>
> (Lefebvre, 1991: 216)

There is further discussion of the relationship between the embodied experience of space, spatial metaphor, and composition later in this work.

2.2.7 Visual spatial mimesis

This compositional use of space calls on and uses our experiences of seeing in the real world and, as such, draws on our experiences of many other kinds of space, particularly social, mathematical, architectural, environmental, and musical space, as experienced only through the visual sense.

Visual space is unique in that it is always in front of us, unlike aural space which surrounds us. A compositional use of visual spatial mimesis might well, as a result, suggest the kind of points of perspective, or points of view, of an observer, that are usually associated with the visual experience of space, the watchful eye thus becomes the watchful ear. There was a brief discussion of point of audition (or point of view) with specific regard to film and radio drama as opposed to music, in the previous chapter. It was suggested there that point of audition or point of view was most likely to be present in work where imagery was supplied predominantly by the verbal and visual content. The use of visual spatial mimesis, however, can make use of our experience of visual space as something observed from a distance, and create a crucial sense of distance in a composition. The experience of space in Ferrari's 1970 composition *Presque Rien No. 1*[15] whilst making compositional use of environmental and social spatial mimesis, is utilising this visual spatial mimesis. The listener becomes, like Ferrari the microphone holder, an observer, a watcher, someone who is not involved in the activities of that little seaside town, someone separate. It is as if the piece is presented to us in the third person by an impartial observer or recordist. In film terms, the whole piece is captured as a 'long shot'.

> "In this way close shots position viewers in a relation of *imaginary* intimacy with what is represented, while medium shots create more formal kinds of imaginary relations, and long shots portray people as though they fall outside the viewer's social orbit... "
>
> (van Leeuwen, 1999: 12-13)

This sort of long shot perspective will be referred to in this thesis as a *narrative structure*[16] (in contrast to Ferrari's use of the term anecdotal). It takes its cue from visual spatial mimesis in that the narrator (or composer) is outside, an observer who

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[15] on Ferrari, L. (1995) *Presque Rien* INAGRM INA C 2008

[16] A *narrative* structure, as used here, is likely to deal with events that the composer has witnessed rather than participated in and is impressionistic. This is in contrast to an *anecdotal* structure, as mentioned above, which exists through an explicit compositional intent to communicate an aspect of intimate internal experience through the production of a piece of work. Anecdotal structure does not arise from the use of visual / spatial mimesis and will be discussed in Chapter 4. The communication of a story or narrative has for many years been a whole subset of music but this genre was opened up and revolutionised by the ability to use real world sounds as will also be discussed in a later chapter.

is making the sound work using their experience of watching or observing apart from a scene.

As part of a visually dominant culture our understanding of the visual is highly developed, we are very familiar with deriving meaning from visual experience and will use those experiences in the production of all other types of space.

> " ... vision is selective. While more than one object or event may occupy the gaze at any one time, vision does not provide an encompassing awareness of the world in the way that sound does. A gaze can be controlled more easily than can hearing."
>
> (Shepherd and Wicke, 1997: 127)

On this point alone, compositional use of visual spatial mimesis is more common, particularly in electroacoustic composition, than we have already acknowledged. Placing a sound in the frame provided by a stereo speaker system is itself more analogous to painting a picture and to our visual experience of space than to our aural experience of space. The space created between those loudspeakers by the composer, as opposed to the sound recordist, is the result of the same sort of choices and exertion of control over what is filling the frame as the painter makes and is *unlike* our experience of aural space where it is difficult, if not impossible, to control what we hear. The compositional use of visual spatial mimesis gives rise to the compositional use of both perspective and what van Leeuwen calls

> " ... social distance ... which creates relations of different degrees of formality between what is represented and the viewer or listener, such as intimacy (the very close shot, the whispered voice), informality (the close or medium close shot, the relaxed casual voice), formality (the medium long or long shot, the louder, higher and tenser voice which 'projects' the message)."
>
> (van Leeuwen, 1999: 15)

There is a kind of visual aural exchange between composer and listener. We have already mentioned the listener's creation of mental spaces from the experience of listening to music-'in the minds eye' or 'cinema for the ear'. When we create an imaginary space we tend to visualise it. The language of electroacoustic music creates pictures in our minds in a way that very few other art forms do, that is unspecific pictures, much more so than maybe the pictures in our mind created by

text, fiction or poetry which can tell of colours and give names to things. Imaginary visual space can thus be created from our experience of aural or musical space and vice versa, in a kind of synaesthesic exchange

> "... communication between the senses transcends mere *association* . Kant already claimed in his psychology that associations, far from being fortuitous, hinge on the affinities of various sensations. These affinities, however, continue to fluctuate depending on the specific cognitive positions of the subject: from lunacy and madness, over dreams and fantasy, to esthetic experience all possible forms of synthaesthesia. In order for there to be synaesthesis the subject has to be simultaneously sensitive and capable of epistimically (cognitively) modifying his sensations. Nevertheless, the old problem of the primacy of *vision* resurfaces in the end: imagination as the main cognitive cause of synaesthesia, continues to manipulate *images*."
>
> (Parret, 1995: 341)

2.2.8 Haptic spatial mimesis

This uses our experiences of physical space as mediated by touch. The main experience offered by the haptic sense is that of connectedness to objects and of textural detail. The language of touch or texture is similar to that which we apply to texture in sound. Spatial texture, meaning the density of massed sound objects, is discussed with regard to motion in Chapter 5.

2.2.9 Aural spatial mimesis

> "Since people typically hear not one, but several sounds at once, they are encompassed and touched by a world of simultaneously structured objects and events. And since sound is evanescent, going out of existence at the very moment that it comes into existence, people are encompassed and touched by a world that is constantly in process and dynamic, a world that only exists while it is being articulated through sound."
>
> (Shepherd and Wicke, 1997:126)

The compositional use of aural spatial mimesis may, in the light of this, suggest an approach where the composer does not exert control over presence placement, the kind of approach to sound taken by Cage and some of the later practitioners of sound art who work with whatever can be heard or captured at any given moment without making 'editorial' choices.

> "For living takes place each instant and that instant is always changing. The wisest thing to do is to open one's ears immediately and hear a sound suddenly before one's thinking has a chance to turn it into something logical, abstract or symbolic."
>
> (Cage, 1952 quoted Nyman, 1999: 1)

As this compositional use of space draws on our experiences of different kinds of spaces, particularly social, architectural, environmental, and musical space as experienced only through the aural sense, aural/spatial mimesis can be used, in a compositional language, to refer to those other kinds of space. For example, the aural experience of the space of people in conversation can be used to suggest social space and the aural experience of the space of birds in flight can be used to suggest environmental space.

The aural experience of space is deeply personal in ways that we take for granted. In order for some sounds to exist they must first vibrate and resonate in the internal space of our own bodies

> "The sound of the human voice could not be amplified and projected were it not for chambers or resonators of air inside the human body (the lungs, the sinus passages, the mouth) that vibrate... "
>
> (Shepherd and Wicke, 1997: 127)

This experience of aural, haptic and physical body space may all be drawn on to produce work which is mimetic of these spatial effects on the body both physically and mentally.

2.3 The compositional use of space and the listener

Before moving on to consider the above types of spatial mimesis with regard to the body of compositions that comprise this submission I should like to consider the listener's reception of the use of space as a compositional parameter.

Denis Smalley has suggested that, in acousmatic music, space acts as an indicative field or network for the listener and that the efficacy of the listener's interpretation of space relies on the successful superimposition of the *composed space* onto the *listening space.* (Smalley, 1992). This has to take into account the

relational structure of spatial content, the relationships and behaviour of sounds in that space, movement between successive spaces and the interaction between the musical space and the listening space. So, although the system for diffusion is important for involving the listener in the music, the perception of other indicative fields may be equally important. To this end the setting up of the composed space is more likely to be successful if

> "...human utterance, proprioceptive perception of physical gesture, and a social interpretation of the behaviour-field... "
>
> (Smalley, 1992: 532)

are present and used effectively. Smalley acknowledges metaphorical readings of the spatial field,

> " ... the listener faced with a vast aural space ... associating the perceived space with states of mind that could be experienced in it, such as loneliness ..."
>
> (Smalley, 1992: 533)

and mentions the relationship of indicative content to the spectral texture of pitch-space[17], to spatial texture,[18] spatial orientation[19], and temporal space

> " ... an impression of space created through stability and continuity in time."
>
> (Smalley, 1992: 534)

Smalley suggests that the listener's experience of personal space is an important factor in drawing them into acousmatic music. This has compositional implications which relate to the range of possibilities that we have been discussing above particularly those to do with the use of social spatial mimesis, composing with sounds in such a way that their behaviour and coexistence might be reminiscent of social relations; physical spatial mimesis, a use of gesture that can be recognised as in some way relating to the bodily experience and physical gesture; and a mimetic discourse in terms of sound material, possibly based on the use of identifiable human sounds. Smalley suggests techniques such as using the spectral texture of sound

---

[17] which creates height / depth dimensions.

[18] an associate of spectral texture in so far as it "concerns the topological content of the real/imagined space" (Smalley 1992: 533).

objects to create ideas of place and orientation in space or point of audition, changing spaces in different ways and changing the spatial context of sound objects.

> "An acousmatic work does not have to confine itself to a single space type...spaces can themselves be transformed : they can be subject to graduated or interpolatory shifts, and the same sounds can appear in different spatial contexts. This I call *spatio-morphology.* "
>
> (Smalley, 1992: 534)

These considerations will be further developed in the following chapters.

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[19] the perception of where sound is coming from, the front, behind, overhead.

3. AN INTRODUCTION TO COMPOSITIONAL SPACE IN THE WORKS PRESENTED

The previous chapter investigated some of the possibilities that non-musical experiences of space might offer the composer. This chapter will concentrate on the application of some of these forms of spatial mimesis in a selection of the works presented in this submission . This is, as its title suggests, an *introduction* to the use of space as a compositional parameter in the works presented, because some of these ideas will be developed in later chapters particularly with regard to social, mental and physical spatial mimesis.

The material in this chapter will concentrate largely on three pieces of work; *Sparks in the Dark, Scan* and *Fallout* and refer to other pieces in anticipation of dealing with them in more detail in later chapters. While the music and sound from *Sparks in the Dark* is not presented as part of this submission it is integral to the works that are presented in that the range of movements and possibilities developed in *Sparks in the Dark* provided ideas about the use of space in all the compositions that followed.

3.1 Social spatial mimesis: *Sparks in the Dark*

Sparks in the Dark was an event which incorporated music, visuals, pyrotechnics and performance to produce an outdoor spectacle of celebratory theatre. It was an Emergency Exit Arts Production, funded by the Arts Council of Great Britain and booked primarily by local councils in the Autumn and Winter of 1991.

The concept behind *Sparks in the Dark* was the creation of a piece which, like many theatrical works, was both a representation of space and a representational space. The creation of these spaces was based on observed spatial practice with particular regard to the nature of power, as manifested through the behaviour and mass psychology of crowds. The sound and music design of *Sparks in the Dark* were two elements in this.

In the performance, a virtual aural space was created by a multi-speaker system. A semi circle of ten loudspeakers, behind the audience, partially enclosed and encircled them, and a stack of powerful loudspeakers at the centre was partially encircled by the audience.

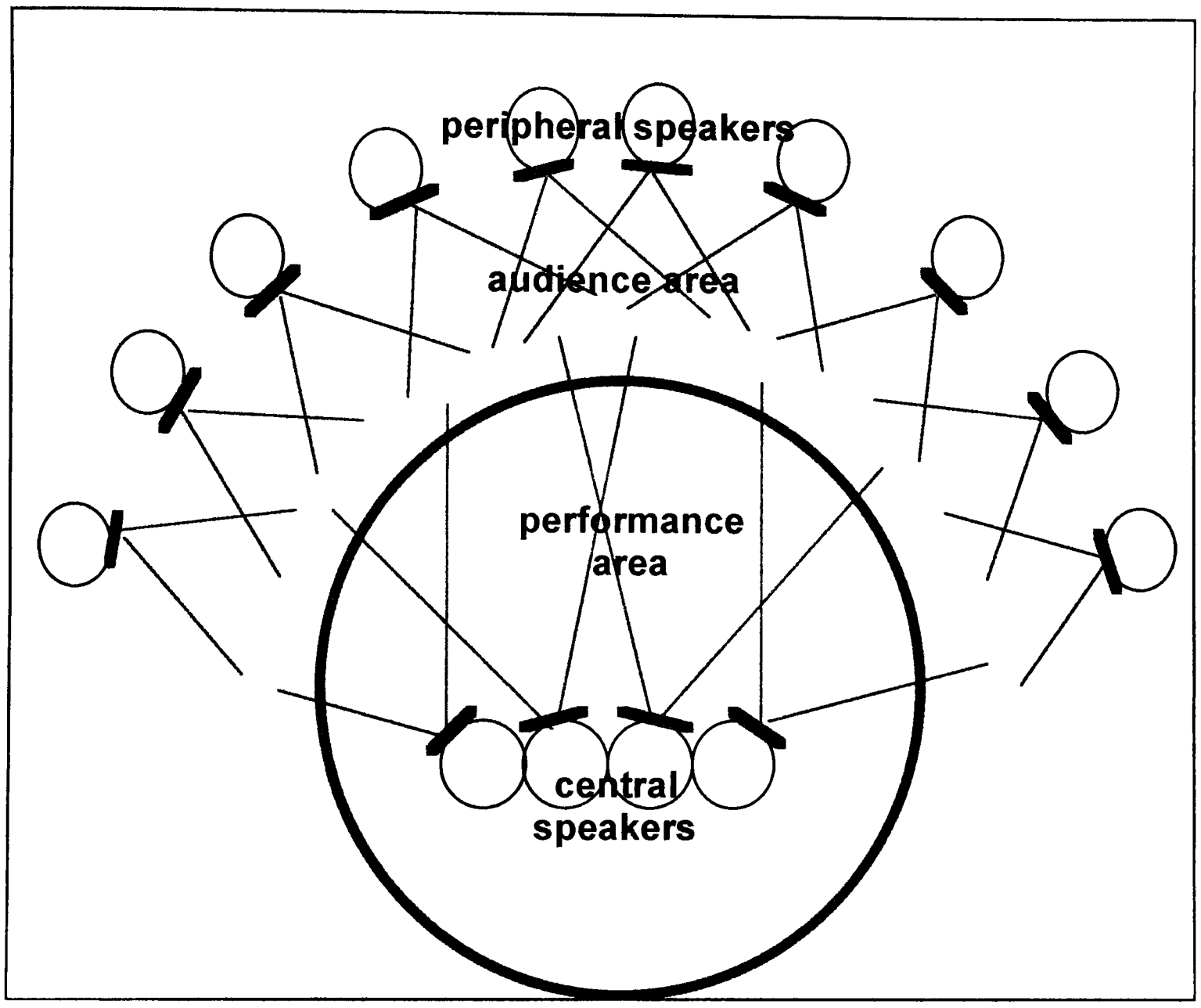

Figure 3:1 Loudspeaker configuration for *Sparks in the Dark*

With this loudspeaker configuration it was possible to move and place sound in many different ways within the virtual acoustic space. Some of these possibilities were utilised in order to explore and reinforce the central theme of the performance which was the exploration of power: the power of the individual, centralised power, state power, the power of the masses.

Before looking at the specific possibilities that this system afforded I would like to consider the loudspeaker array as a metaphor for the inside and the outside, the powerful and the less powerful, central authority and the masses. All loudspeaker arrays can be said to have a spatially metaphorical interpretation. The standard stereo playback system has a relationship to the placement of the ears, and could be said to be arranged according to physical spatial mimesis. Stereo playback in concert does often involve an audience staring at a pair of loudspeakers in a kind of visual spatial mimesis, and, despite the fact that the sound is flowing into the room from those speakers there is still an element of 'gazing' at them, and metaphorically at the sound, with a 'distanced' ear. A quadraphonic system owes more to architectural spatial mimesis by establishing the space of acoustic operation and enclosing the audience in an acoustic embrace. The acoustic experience in a real room, is, however, different from that of a seated audience enclosed by a speaker system. In a real room it would be normal to turn around if an unexpected, unidentified and unrecognised sound were heard. This is, of course, not normal in an electroacoustic concert setting and is, as a result, something that can be used to great effect. Most multispeaker systems aim to recreate an acoustic environment as close as possible to the surround sound of real world listening and succeed with varying degrees.

The loudspeaker configuration for *Sparks in the Dark* combined all of the above. The central speakers were a powerful stereo playback system situated in the audience's main line of focus and, although they were largely hidden, could be seen as providing the voice of the on-stage action, separate from and apart from the audience. The peripheral speakers were behind, hidden from the audience and at times the material issuing from them was indistinguishable from the real sound of the audience. Sometimes this material was meant to be *of* the audience, sometimes it embraced and included them in the main action.

The huge range of possible movements and gestures between the two front and ten back speakers was developed in order to create a socio-spatial narrative or dialectic alongside the narrative of the story. This narrative of sonic social spatial

mimesis sometimes worked with the other theatrical elements and sometimes in counterpoint to them. As mentioned above, at times the sounds emanating from the peripheral speakers enclosed and included the audience as participants in, rather than spectators of, the action. At one point in the action the main character, a fallen dictator, is hunted down by his erstwhile supporters. The visual action is supported and emphasised by spatial movement of sound from the back to the front loudspeakers to try and create a sense of movement from enclosing and including the audience to enclosing the central character leaving the audience as onlookers. Throughout this section the sound moves from open to closed, wide to narrow or free to captured, using spatial metaphors taken from the social activity of hunting. At other times in the performance the spatial patterning of the sound was influenced by something other than the visual action of the performance. At times the central speakers reproduced material that related to the perceived performance while the peripheral speakers projected a kind of commentary on the action at once suggesting to the crowd what they might want to think and reflecting what they might actually think.

In performance, *Sparks in the Dark* produced a representational space based on observed spatial practice and the virtual acoustic space delivered by and created within the loudspeaker system was often more powerful, particularly to a large audience, than the visual action.

3.2 Architectural and physical spatial mimesis: *Scan*

Sparks in the Dark primarily used the placement and movement of sound in theatrical space to emphasise and comment on the visual and dramatic action that was taking place. *Scan,* another piece of work written for theatrical or dance performance primarily uses architectural and physical spatial mimesis. *Scan* is one of the works presented as part of this submission.

Like *Sparks in the Dark, Scan* is a piece of collaborative work, produced with a choreographer, Rosemary Butcher and a visual artist Vong Phaopanit. I was invited

to collaborate by Rosemary because of our mutual interest in exploring personal experience and working with the body's experience of space.

My brief as composer and sound designer was to produce a 'wall of sound' that had no emotional crescendo or decrescendo, no volume or tempo changes and that operated at an unvaryingly intense emotional level for about forty minutes. The challenge in this context was to produce a piece of work that fitted that brief, maintained some sort of interest and fitted in with my own aesthetic and desire to investigate space as a compositional parameter.

Scan derives its name from medical procedures and the possibilities afforded by the invisible being made visible. The work is based on the body's experience of space, including many coexisting spaces, levels and types of operation happening at once, largely unknown to us, and others, in their function of keeping us alive. Many of the choreographic movements used in *Scan* are derived from working with the hidden movements and processes of the body, and gestures were developed from this kind of internal physical spatial mimesis to form motifs that repeat in various ways during the performance. The development of the compositional use of gestural motifs in the works presented in this submission will be discussed in a later chapter. In *Scan*, however, the use of gesture, and motifs derived from gesture, is mainly in the territory of the choreography rather than the music. The compositional use of space in the piece is largely architectural based on the external and internal structure of the body. In performance the music does indeed form a 'wall of sound' created through the use of architectural spatial mimesis by making a virtual room or acoustic container. This is achieved through the use of dense, slowly shifting textures which although they vary from one moment to the next, also achieve a kind of material stasis in terms of speed, density and penetrability. This virtual room or acoustic container becomes a metaphor for the body as it is filled with the physical motions (in the form of choreographed gestures) and amplified body sounds, an invisible body revealed and made manifest through sound, which encloses the audience so that they become part of that virtual body. This is partly achieved by four loudspeakers which are positioned

behind the audience at the corners of the small square performance area surrounding the audience *(see Figure 2 below).*

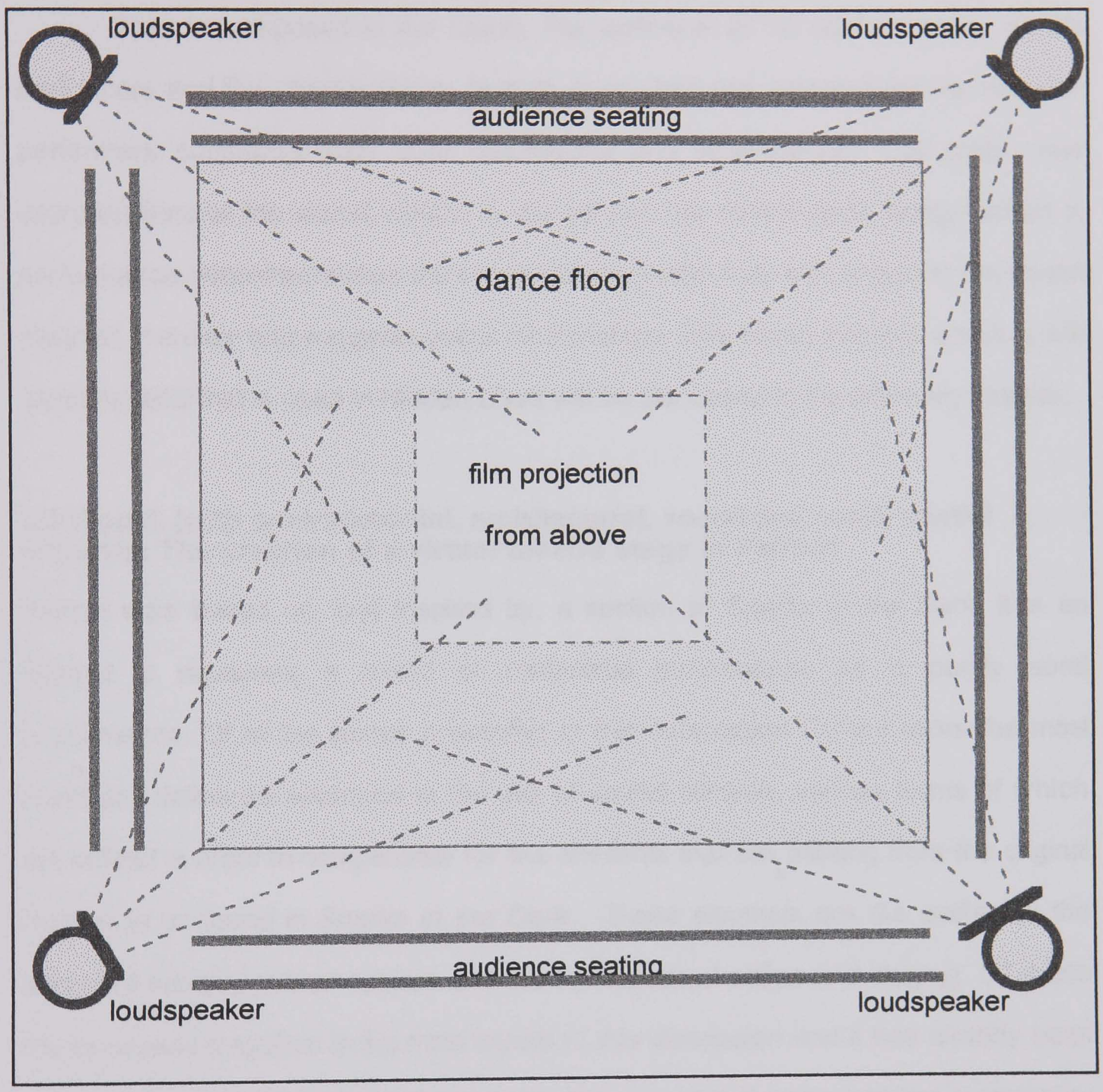

Figure 3:2 Loudspeaker configuration for *Scan*

Scan ends with a short film. The film is another way of presenting the invisible and the hidden. It concentrates on two main themes. The first concerns the angles and parts of the body that are not normally seen, noticed, or in some cases, recognised in the normal process of watching the live performed work. The second is a revelation of the rehearsal process, the work behind the work. The sound design

for the film is relatively minimal, the film acts as a coda to the performance, and utilises the sounds that are not normally heard like the instructions issued in rehearsals, the feedback from the dancers, or the impact of body on floor.

Scan is composed in the round, the audience sit on all four sides of the performers and the choreography reveals ever changing perspectives as the four performers constantly vary their orientations and relationships. This adds new interpretations of the sound which, in the light of the relationships being formed in performance, recontextualises the sound design, particularly with regard to the sound material, in a way that suggests social relationships. This sound material, which is the same material that is used in *Hidden Lives* will be discussed in the following chapter.

3.3 Visual, (with environmental, architectural, social and aural) spatial mimesis: The creation of a virtual theatre stage in *Fallout*

Fallout was based on, and inspired by, a section of *Sparks in the Dark*. It is an attempt to represent a mixed or multimedia performance as a purely aural performance. Of all the pieces presented in this submission *Fallout* takes the most direct and deliberate approach to the use of spatial mimesis, various forms of which are utilised in order to compensate for the elements that are missing from the original inspiration as found in *Sparks in the Dark* . These elements are the audience; the surround sound speaker system and the live theatrical action and staging. Of these the loudspeaker system is the most crucial to this discussion and it has already been mentioned how the loudspeaker array and the use of that array became a metaphor for power and central control. This is not, however, the main inspiration behind the production of *Fallout,* which is an exploration of the motion possibilities that the speaker system in *Sparks in the Dark* offered and the delineation of a virtual acoustic space.

The aural space in *Sparks in the Dark* was, as we have discussed above, created by one loudspeaker array encircling the audience and another in the centre of the audience. *Fallout* was written for a stereo speaker system and, while in *Sparks*

in the Dark the virtual acoustic space was made by the configuration of the loudspeakers, in *Fallout* it is suggested by the placement and motion of representational sound objects in the sort of visual spatial mimesis that is referred to by the term 'cinema of the ear'. The sound objects themselves act as the live performers and their props and, in placing them in space, I have thought of them as performers to be directed in order to convey a narrative as much as sound to be organised in order to make music. The theatrical or rather filmic action takes place in one location. This is an aural landscape and as such has elements of environmental spatial mimesis, but it is very much an imaginary landscape and its primary purpose is to act as a back drop to the action that takes place there. In this it is like a film or stage set . This location is primarily suggested by the placement of static centres of action. The action that occurs at these centres changes at various points in the piece but still demarcates a kind of location boundary for this 'ear film'. The parameters of stereo panning, volume changes, high frequency filtering, envelope attack, slight pitch changes and length of decays are used in order to try and create three dimensional space behind and in front of the stereo loudspeakers. This use of aural spatial mimesis is very much in the service of the visual spatial mimesis that is dominant in *Fallout.*

In terms of 'cinema of the ear' the whole of *Fallout* takes place in a 'long shot', which, as we discussed in the previous chapter, is referred to in this thesis as a narrative structure. The telling of the narrative depends both on the efficacy of the kinds of spatial mimesis employed in the composition combined with the choice and use of the sound objects.

The stage, or location boundary, is delineated by the position of the bell, and later the horn sounds, which are placed in a kind of rectangular format. The rather slow and regular metre of the bells attempts to draw the listener into the music space in order to inhabit the stereo sound world and leave behind the real world listening space. Although this discussion has, so far, been limited to space as a compositional parameter and the following chapter is devoted to discussion of the choice of sound

objects it is not possible to separate the placement of sound and the sound itself in the delineation of the location in *Fallout*. Over time various events occur in the musical space which are suggestive, both in terms of their motion or spatial characteristics and in terms of the sound material used, of human, and other than human, forces. These individuals and groups move in and out of the space in various ways and from various directions, sometimes interacting with each other and sometimes not, until they come together to form the central riff that was featured in the theatre piece.

There were at least two social spaces created in *Sparks in the Dark* . One was the social space of the audience and its involvement with the action which was enhanced by the social spatial mimesis created by the utilisation of sound material in the encircling speaker system. The other was the representation of social practice set up by the movement and placement of sound around and through the aural space created by the speaker system which was augmented by the relationships of characters in the theatrical action. The use of social spatial mimesis in *Fallout* is much vaguer but I have tried to evoke some sort of musical or sonic equivalent of the live action by trying to create in the piece a stage or place which acts as a backdrop or setting for the action and events on that stage. I therefore worked from a kind of narrative in my head which acts as a structure to the movement and to this end I concentrated on the creation of an atmosphere of place and a narrative of 'characters' in motion.[20]

3.4 Architectural, (with social and physical) spatial mimesis: The creation of a virtual house in *Hidden Lives*

In *Hidden Lives* I have I also attempted to create a kind of imaginary or virtual setting as a backdrop for action, but this time it is a quite different sort of action from the socially mimetic 'drama' of *Fallout*.

Hidden Lives is set in a virtual house, a house that uses a more complex web of spatial mimesis, metaphor and associative or representational sound objects than I

[20] *Fallout* was originally conceived as part of a concert suite based on *Sparks in the Dark*.

wish to go into at this stage (it is discussed in 7.2). Indeed, the house is itself a metaphor. On a basic level, however, *Hidden Lives* uses architectural spatial mimesis, utilising some of the same techniques as in *Fallout*, namely, stereo positioning, volume, filtering, attack, slight pitch changes and changes to the length of decays in order to try and create the sense of movement along the passages and through the rooms of the virtual house.

3.5 Visual and Mathematical spatial mimesis: *Bath*

Bath concentrates on the use of motion and spatial distribution related to the observed motion of water. This may be termed natural spatial mimesis, as the motion motifs that I was interested in exploring were mimetic of the natural behaviour of water in a variety of different situations. However some of these motion patterns are related to more abstract mathematical spatial motifs. These motifs are derived from aspects of the observed motion of water including the acts of cleansing, wiping away, dissolving, drowning, mirroring, flowing, dripping, floating, the tide, circulatory, spherical and rhythmic movement. These aspects of the composition, however, cannot be separated from the sound material, which itself is all derived from water. *Bath* will be discussed in further detail in Chapters 5 and 7.

3.6 Social, mental and physical spatial mimesis: *Nesting Stones*, *Invisible Crowds* and *Hidden Lives*.

The elements of spatial mimesis in these compositions are inseparable from the sound material used and they will be discussed later in this text.

Having undertaken this study of the possibilities of space as a compositional parameter and identified the areas of spatially mimetic and spatially non-mimetic discourse I would now like to move on to look at the possibilities afforded by combining certain kinds of spatial mimesis with representational sound material and the more specific possibilities afforded by the use of metaphor. As we shall see the combinations of spatially mimetic discourse with carefully chosen sound material

offers further compositional possibilities particularly in terms of the development of a compositional language designed to speak of personal experience.

4. PRODUCING SOUND WORLDS : SOUND MATERIAL AND STRUCTURE

The preceding chapters contained an investigation into the use of space in the production of electroacoustic music with regard to specific works. This chapter will look at theoretical issues with regard to the choice and structure of sound material with reference to the pieces in this portfolio.

The pioneering early work by Pierre Schaeffer and the Groupe de Recherches Musicales with regard to sound material, concentrated on acousmatic listening and the aurally perceived characteristics of sounds.

> "Pierre Schaeffer gave the name reduced listening to the listening mode that focuses on the traits of the sound itself, independent of its cause and of its meaning. Reduced listening takes the sound-verbal, played on an instrument, noises or whatever-as itself the object to be observed instead of as a vehicle for something else."
>
> (Chion, 1990: 29)[21]

Whilst there have always been adherents to this 'reduced listening' strategy, there has been a general and gradual shift in the overall aesthetics of acousmatic music particularly with regard to the relationship of sound to source.

> " The acousmatic approach suggests that we should sever the sound-source connection to create a 'sound object' - an aural artefact detached from the real world, an 'object for perception' . By analysing the spectromorphology (Smalley, 1986) of the sound object, we can create transformations that are 'abstracted' from the original sound and hence create a purely aural discourse (Emmerson, 1986). ... The question that must be asked if we choose the alternate approach, that is, *not* to sever the sound-source relationship, is what language of discourse will emerge. The main precedents (e.g. programmatic music, sound effects, collage, functional music etc.) are not inspiring."
>
> (Truax, 1996b: 19)

Truax has in fact slightly misrepresented Emmerson (1986) who recognised that electroacoustic music on tape has given rise to

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[21] Dack (1994) suggests that Schaeffer was aware and engaged with wider sound associations :
"I was suddenly aware that the only mystery worthy of interest is concealed in the familiar trappings of triviality. And I noticed without surprise by recording the noise of things one could perceive beyond sounds, the daily metaphors that they suggest to us." (Dack 1994: 7)

> "the possible relation of the sounds to associated or evoked images in the mind of the listener ... By deliberately removing the visual clues as to the cause of sounds, indeed by removing or reducing visual stimulation of any kind, the composer is almost challenging the listener to re-create, if not an apparent cause, then at least an associated image to 'accompany' the music. The data for such a construction are entirely aural."
>
> (Emmerson, 1986: 18).

Emmerson's identification of two kinds of mimesis (the use of sound in deliberate imitation of either the natural world or other aspects of human culture) was briefly referred to in Chapter 2. They are *timbral mimesis*, imitative of the timbre or colour of a natural sound; and *syntactic mimesis*, mimetic of the relations of natural events. The use of these forms of mimesis can follow two kinds of discourse; *aural discourse*, which concentrates on 'abstract musical substance' such as much of the early work from GRM ; and *mimetic discourse* such as Ferrari's *Presque Rien No 1* and Wishart's *Red Bird* [22], cited by Emmerson as works in which a mimetic discourse is dominant. Emmerson goes on to investigate the rich compositional possibilities of these discourses.

> "The two, to varying degrees in any specific work, combine to make the totality of 'musical discourse'. "
>
> (Emmerson, 1986: 19)

While in his earlier writing Smalley stated that

> "Spectro-morphology reaffirms the primacy of aural perception..."
>
> (Smalley, 1986:93)

he later developed these views to encompass the importance of the indicative relations of sounds and sound objects as well as their intrinsic qualities. Indicative relationships, according to Smalley (1992), are a way of relating the musical experience to extramusical experience i.e. experience of life. This is more possible in electroacoustic music where the sound objects are drawn from every aspect or part of the sound world rather than the limited range of instrumental or vocal gestures and

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[22] on Ferrari, L. (1995) *Presque Rien* INAGRM INA C 2008 and Wishart, T. *Red Bird: A Political Prisoner's Dream* October Music : OCT001

sources previously possible. Smalley identifies nine indicative fields without which the composer might fail to relate life experience to musical experience and vice versa. They exist both individually as *fields*, and, in relationship with each other, as *networks*. They are all universal, although they might not be recognised as such by all listeners, and are all in some way mimetic, in that they indicate aspects of relationships in nature and culture.

Smalley's fields are *gesture, behaviour, utterance, energy, motion, object / substance, environment, vision* and *space*. Of these fields *gesture, behaviour, space* and *environment*, in the sense of built environments, relate to our main theme of space as a compositional parameter and have already been discussed in the two previous chapters and will be discussed further below.

Utterance, emanates from the human body, and as such the sounds of utterance "are the essential vehicle of personal expression and communication," which " makes utterance intimate and emotionally charged." (Smalley, 1992: 525) The use of the sounds of utterance with regard to the works presented will be discussed below in section 4.1.2.

By *object / substance*, Smalley means "... the popular sense of 'thingness' ..." (Smalley, 1992: 529) that is, whether the sound object can be recognised or thought to be recognised as to its supposed source. This recognition could come from recognition of the material - like qualities of the sound ; from its spectral energy and motion which will suggest " ... analogies with the motion of objects ... " (Smalley, 1992: 529) or from its behaviour or " ... plausible gestural origin ... " (Smalley, 1992: 529). These issues of gesture and motion with relation to sounds will be discussed in later chapters.

These indicative fields and networks, according to Smalley, relate music to our non-musical experience. Most non-electroacoustic music uses the human utterance and gestural indicative fields almost exclusively for its sounding models. In electroacoustic composition, however, instrumental gesture covering a whole range

of pitches, used again and again, has generally been discarded and *all* forms of human utterance[23] (rather than specific forms of utterance i.e. singing), as well as sounds drawn from a huge variety of other sources, can be used.

It is this indicative field, the use of the sounds of nature either in timbral or syntactical mimesis, that Wishart (1985, 1986) has written about with reference to the creation of sonic landscapes as mentioned earlier (2.2.3). In order to achieve this juxtaposition of real and unreal features and detail in a sonic landscape, there is a reliance on source, or imagined source, recognition. However, once sounds have been identified they can be combined with each other spatially and juxtaposed in ways that can create symbols, metaphors and more complete images. Wishart's compositional approach

> " ... to build up a complex metaphorical network ... "
>
> (Wishart, 1986: 55)

has been to develop specific sound transformation techniques.

Other composers have addressed the same problem in different ways. In an article about Dhomont's *Points de Fuite*[24] Roy (1996) talks about how the piece:

> "explores metaphors based on recurrent anecdotal events - the recorded signifiers of the source. These extra musical elements define the work's structure to such an extent that they eliminate the traditional gap between formalism and referentialism in music ".
>
> (Roy, 1996: 29)

Dhomont himself has said

> "Acousmatic art is the art of mental representation triggered by sound."
>
> (Dhomont, 1996: 25)

In order to satisfy his search for something more complex and more direct that

> " ... involves the listener in the real world of gender, environment and cultural symbols."
>
> (Truax, 1996b:19)

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[23] Smalley observes that when the human voice is introduced in electroacoustic music it will usually become the main focus of attention.

[24] on Dhomont, F. (1991) *Mouvances - Metaphores; cycle de l'errance* empreintes DIGITALes IMED-9107/08 - CD.

Truax has developed his own timbral composition techniques of granular synthesis. He believes that

> " ... it is up to electroacoustic composers to create the musical language and find the means to communicate with it. I suspect it will mean rejecting both the aesthetic of nonsense and meaninglessness adopted by the avant garde earlier in the century, or the aesthetic of nihilism offered by the post-modernists today. It will also certainly involve redirecting the single-minded pursuit of abstraction promoted by the academy. It could even involve a major paradigm shift towards complexity, not merely the internal complexity favoured by the abstractionists, but rather a reintegration of that complexity with sources in a real world context."
>
> (Truax, 1996b: 20)

This poses two problems for the composer wishing to develop a language that is expressive of personal experience:

1. How to choose sound material that is referential to real world experience, or has as wide a range of representational interpretations as possible, and
2. How to structure that material.

In developing a compositional language to convey personal experience it is important to choose sound material which is rich in associative possibilities. Obviously, the most straightforward relationship, 'sound of object means object', is what is used in sound effects, but the composer who is dealing with the integration of real world sound into a compositional language that is in any way related to real world experience needs to develop more sophisticated structural relationships.

I shall deal with these structural relationships or gestural metaphors, as I have called them, in later chapters. The remainder of this chapter is devoted to examining the works presented with regard to the choice of sound material and structure.

4.1 Choice of sound material

I have chosen the sound material in my work according to a number of aesthetic, musical, emotional and gestural criteria but, above all, in relation to compositional intent. In this section I would like to examine those choices more specifically in the light of the representational, associative and evocative qualities of the sound worlds as

discussed above, and separately from the spatial mimesis that has been discussed in the previous chapters. I would like to make clear that this relates to the compositional process and has no claims as regards the listener's reception[25]. In later chapters I shall relate the choice of sound material more explicitly to compositional intent.

The choice of sound material in the pieces presented falls into three distinct categories: sound material that is inherently non-representational; sound material that is derived from human utterance and sound material that is derived from water.

4.1.1 Sound material that is inherently non-representational.

In two of the pieces presented, *Fallout* and *Invisible Crowds* the sound material is not obviously representational [26] but it has been combined with other compositional parameters to behave representationally.

4.1.1.1 *Fallout*

I have already discussed (3.3) the fact that in *Fallout* the sound objects function as performers in, and markers of, the virtual theatre space. The sounds chosen are all derived from the percussive instruments that were being used both live and recorded in *Sparks in the Dark,* and I have simply thought of the cabasa sound as one character, not necessarily human, and the guiro as another. The sounds themselves have undergone relatively little processing compared with later pieces and, as such, are mainly recognisable as to their source, but the source of the sound and behaviour of the sound bear no relationship to each other and as such conform to Wishart's category of *real* (albeit imaginary) landscape and *unreal* sounds in terms of their behaviour. In terms of Smalley's indicative fields the behaviour and motion fields are more important factors than the recognition of the sound objects. In addition, the sounds, rhythms and pace chosen are, at times, reminiscent of processions and in these cases suggest a mood, with events, rather than a distinct narrative.

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[25] This thesis is about the compositions that make up the submission. The listener is discussed at times but it is not the primary consideration.
[26] In Wishart's terms the sounds are *unreal* in relation to the spatial mimesis and other elements employed in the works.

4.1.1.2 *Invisible Crowds*

In *Invisible Crowds* the aural discourse is more predominant than in *Fallout* and there is less of a linear narrative. The sound material is taken, once again, from percussion objects. These are more processed than in *Fallout*, partly due to available technology, partly due to increasing skill and technique as a composer on my part. There is a certain amount of what Emmerson has termed 'syntactic mimesis' with regard to the sound material employed in *Invisible Crowds*. The sounds could all be thought of as thoughts and thought patterns and the way that they have been utilised, not only spatially, but also in terms of their associative qualities, relate to ways that we think about our thought patterns.

Metaphorically, *Invisible Crowds* opens with a kind of meditative state, a 'one track mind' cleared of all thoughts. Throughout the opening the smooth single pitched chime is joined by others, at times these patterns of thought are disturbed by more texturally spiky thoughts occurring and interrupting, some slowly dawning, some passing almost as soon as they occur. Eventually the smooth sounds are interrupted by waves of more jangling, less meditative, patterns until the speeding up bell sound starts to be an alarm, an alarm clock waking the subject out of reverie. The 'warning bell sounding in my head' triggers another state of mind, more fractured with small varied fragments of thought appearing from all around and beginning to coalesce into a more cohesive whole. At times it sounds literally as if the "penny drops", at other times various external sources serve to interrupt and take over. I shall discuss *Invisible Crowds* further in Chapter 7.1. 2.

4.1.2 Sound material that is derived from human utterance

Nesting Stones, *Hidden Lives* and *Scan* all use sound material derived almost exclusively from human utterance.

Smalley (1992) has said that utterance is automatically emotionally charged and that w hen the human voice is introduced in electroacoustic music it will usually become the main focus. In all of the above pieces, however, human utterance is

virtually the **only** sound source present. Each of these pieces uses different kinds of human sounds, treats and structures them differently and is written with a different compositional idea in mind.

4.1.2.1 *Nesting Stones*

In *Nesting Stones* I chose to use a sound world that was largely based on human utterance and to keep it relatively recognisable and in some way associative for any listener. This was partly because I wanted to move into writing a piece based on more personal experience than the 'virtual theatre' of *Fallout*, and my starting point for the composition of *Nesting Stones* was a section in *Sparks in the Dark* that used sound material derived from human utterance, particularly voice and breath.

Nesting Stones became a piece informed by my relationship with my daughter. The sound world is largely derived from my daughter, just as she was learning to speak, and from myself. The sounds are mainly non verbal; cries, laughs, breaths with some words.

> " In electroacoustic music the voice always announces a human presence, perhaps in a sounding context that is not regarded as directly human. This presence alters the significance of the context, redirecting the listener's attention to centre on indicative meanings associated with the perceived utterance."
>
> (Smalley, 1992: 525-6)

The use of this sound world produced a huge range of technical problems that I had not had to face before. Much of the sound recorded w as of poor quality due to the difficult nature of recording (what was then) a very active baby / toddler and there is a lack of variation in the sound material, spectrally, gesturally and associatively in that too many of the sounds seemed to carry similar associative qualities that once recognised became quickly redundant. When used unprocessed, most of the sound objects are directly recognisable to their source and had to be used with care to avoid falling into the trap of making the piece a twee homage to motherly adoration. However, when processed many of the sound objects quickly lost their more recognisable and therefore associative qualities and became too abstracted . The sounds of the disembodied voice of a small child as used in *Nesting*

Stones, have developed cultural associations, [27] to many listeners there is something intrinsically 'spooky' about the laughter of an unseen child. My main aim in using this sound material did not concern this, however, but to convey a number of emotions and personal experiences and observations.

The recordings made of my daughter indicated a number of states of engagement with, or withdrawals from the world, ranging from total self-absorbed and happy unconcern to extreme distress and need to seek comfort from her mother. The mixture of lack of self-consciousness in the face of the recording mechanism with total openness in the expression of emotion is very unusual, probably only shared by very small children and animals and, as a result, it is very easy to read the emotional content of the verbal and pre-verbal utterances. The recordings made of myself were also 'fly on the wall', eavesdropping on moments of intimacy that are rarely heard outside the confines of the home. The sounds were taken from hours of recordings made and were chosen and structured in order to emphasis their emotional significance according to the overall mood of the four sections of the piece. This is described in more detail in Chapter 7.

Hidden Lives and *Scan*

The sound material of *Hidden Lives* and *Scan* is entirely derived from human utterance. This was initially circumstantial.

4.1.2.2 *Hidden Lives*

Hidden Lives was commissioned by the Institut International de Musique Electroacoustique de Bourges and realised at their studios in France. I was determined that I would complete a piece of work during this three week residency. I had a number of ideas about the piece that I wanted to write but very little time to prepare before leaving for France and most of my ideas were therefore impractical. As a result the material for *Hidden Lives* was almost decided upon by chance. Having

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[27] This seems to arise partly from its use in Hollywood films. The films that are cited by all listeners who comment on this are films featuring Bette Davis or Joan Crawford, but nobody is more specific that this.

decided that I was going to arrive in France with all the recorded material that I was going to work with, I spent the fortnight or so up to my departure time asking all female visitors to my house to read from a manual of household management for women dating from the 1930s entitled *The Book of Hints and Wrinkles*. Each friend was asked to read the same passage about the daily duties of the housewife, *The Weekly Work Plan*, and also a passage of their own choice, these ranged from advice on *The Housewife's Personal Appearance* to descriptions of *The Management of Young Children*.

I had very little idea what I was going to do with the recordings but I had initially been struck with the book as a document of social history particularly pertaining to the space inhabited by women at that time. This space was, on the one hand, an architectural space of rooms to be cleaned, cupboards to be turned out and stairs to be climbed, nooks and crannies to be cleaned and sorted constantly on the never-ending task of establishing and running a clean and orderly house. The space is also the mental space of the poor housewife of the time, a space where there is virtually *no* space between the timing of the many daily tasks, but in which these women are constantly exhorted to smile and put up with their lot. This mental space could, of course, be seen as a confined and limited space, but it could also be seen as a desirably safe and clearly defined space in which the woman rules supreme. With all these conflicting ideas of space suggested by the words, I could not help but be struck by the differences between the lives described here and the lives of my readers, women living seventy years on, which made me aware of both gain and loss, particularly with regard to space, over the progress of time.

The recordings themselves captured a fine range of women's voices of a variety of ages, performances, and accents. On listening I was also struck by the extra sounds that each reader added, sounds of breath and small mouth noises as well as the differences of emphasis both on whole words and parts of words, consonants or vowels.

I began to work with the material with these thoughts and observations in mind and, after experimenting with it, I found myself doing very little processing of the material apart from editing out different parts of the readings and putting them together in a variety of different ways. This approach to the sound material was in itself metaphorical. I was concerned with dealing with different categories of the sounds at different times in the piece so that the heard sound material develops, roughly speaking, from half-heard whispers and sibilants to the massed voices speaking the full texts. In between these points there are sections made up from just the individual little clicks and mouth sounds made between words or at the ends or beginnings of words; sections made from soft consonants like 'p' or 'b' and sections made from hard consonants like 'd' and 'c'; sections made up from passages of spoken text with most of the body of the words removed but keeping the basic intonation, to passages where the odd word is suddenly heard, to passages where all words are heard. Metaphorically, this could suggest the development of women's voice or women's language; it could suggest the collection of memories that reside within a house over years; it could be taken to suggest a growing clamour of women's voices building up over time; or it could be taken to suggest that the words themselves are like memories, small fragments of which can be recalled at various periods. Although the sound material itself has been processed and edited with possible metaphorical interpretations in mind, the metaphors in *Hidden Lives*, as in *Invisible Crowds* and *Nesting Stones* discussed earlier and *Scan* discussed below, do not reside solely in the sound material but are a complex combination of many compositional parameters including spatial mimesis. This complex combination will be dealt with in Chapter 7.

4.1.2.3 *Scan*

Scan uses exactly the same material as *Hidden Lives* for a number of reasons. The first reason is that I had worked with the material in *Hidden Lives* for three weeks and as the pieces had been completed relatively quickly, I felt that there was still a lot of investigation that I wished to carry out. Secondly, I had very little time to complete *Scan*, which was to be a long piece, and I felt that I needed to work with material that

I already possessed and that was, in some way, familiar to me. Thirdly, *Scan* was about the body and the invisible being made visible and it seemed appropriate to use sounds derived from the body.

Although it is derived from the same sounds, the sound material in *Scan* is quite different from that used in *Hidden Lives* and it is structured quite differently.

Scan uses just four of the basic sound categories mentioned above, but it is four times as long as *Hidden Lives* so the rate of change of material is much slower. *Scan* starts with sibilant sounds, moves into breath sounds, to click sounds and then to isolated consonant sounds moving basically from soft sounds to hard sounds. The processes used are much more to do with massing layers of sound together in order to attempt to build up the kind of virtual wall of sound that I was asked for. In *Scan* the words or meanings of the sounds are never revealed. In the visual and live action the central metaphor is of the invisible being made visible, but in the sound design the central metaphor is of the visible or the comprehensible remaining hidden.

4.1.3 Sound material that is derived from water

All sounds in *Bath* are recorded or derived from water, water going into, coming out of and moving around in various kinds of containers; water as manifested in the weather as rain, drizzle or hail; water in nature as found in rivers, streams and the sea and water used for leisure such as in swimming pools. In *Bath* there are very direct relationships between the water sounds and the other compositional elements of the piece which are also derived from water or from man's relationship with water. This is further expanded in Chapter 7.

4.1.4 Sound metaphors in *Nesting Stones, Invisible Crowds, Bath, Hidden Lives* and *Scan*.

The preceding sections have dealt with the sound material used in *Nesting Stones*, *Invisible Crowds*, *Bath*, *Hidden Lives* and *Scan*. This material is all derived from different sources but the way that the material is used has some kind of metaphorical

intent in common. The metaphors in the works presented in this submission arise from a complex combination of many things which I have termed *gestural metaphor*. I shall be expanding on gestural metaphor in the following chapters starting with a more detailed investigation of the use of metaphor in the next chapter. Gestural metaphors are small structures combining many compositional elements, including sound material and spatial mimesis together, in order to structure work. The rest of this chapter will deal with larger overall structures for a piece of work.

4.2. Structure of sound work

This section will deal with the larger structures for work. These structures, to some extent, articulate compositional intent. The two main kinds of structure that are identified here are termed *narrative structure* and *anecdotal structure*.

4.2.1 Narrative structure

In a narrative structure the compositional intent is to communicate a third-person story or a narrative with the composer acting as a narrator or an outside ear. A narrative structure, as I am using it here, is likely to deal with events that the composer has witnessed rather than experienced. Of the pieces presented here, *Fallout* has a linear, simple narrative structure in which, against the backdrop of the location or stage, a number of individual and groups of characters enter and leave.

The communication of a story or narrative as in programme music has been changed by the use, in electroacoustic composition, of real-world sounds capable of indicating extra-musical associations. But, with a few notable exceptions, this has been used in narrative structures, many of them abstract

> "As musique concrète was born of the radio play department of the French radio, it might be said that the first real-life programme music was music in which any sound can be used, electroacoustic music. Yet few have chosen real-life programmes; instead surrealistic and abstract images have been evoked by many composers who have created imaginary landscapes and abstract narratives in their works".
>
> (Landy, 1994: 55)

This is possibly just what I have done with *Fallout* which has no real details as to its location. The narrative in a piece such as Luc Ferrari's *Presque Rien No 1* is so much more definite because the real-world sounds, setting and sounds of actions have remained and the timescale is the main element that has been composed. This piece fits into Wishart's category of real landscape / real sounds or Emmerson's of the use of timbral and syntactic mimesis in the creation of a mimetic discourse.

However, this kind of documentary approach is just a small part of the possibilities offered by the use of associative sound objects, as Smalley points out;

> " ... if we do not confine the notion of the indicative relationship to mere messages, events and information but extend it to include a wider frame of references to experiences outside and beyond music, we immediately penetrate both more extensively and deeply into the relationship between musical experience and our experiences of living."
>
> (Smalley, 1992: 521)

This is what I have tried to do in working with what I have called anecdotal structures.

4.2.2 Anecdotal structure

I am using the term *anecdotal structure* in relation to the explicit compositional intent of communicating an aspect of intimate, psychological or emotional experience, through the production of space, in this case aural space, using associative sound material.

The internal life of the composer has always played a large part in composition. The life experience (content and context) of a composer will shape the work as much as musical experience (technique, language and form). However this is usually implicit rather than explicit in the compositional processes and results.

The primary intention of compositional use of an anecdotal structure is to be implicitly expressive. In an anecdotal structure the composer constructs a map of symbols and signs of internal states to express personally experienced emotional and psychological states. Anecdotal structure, as I am using it here, is primarily driven by the expression of experience undergone, rather than of happenings observed, and

thus may draw on the range of devices that anyone who is compelled to express an inner world draws upon, that of metaphors, symbols and associations. In order to do this the composer may use spatial mimesis of the kinds that we have discussed earlier, mimetic discourse in terms of recognisable associative sound objects (as was discussed earlier in this chapter), metaphorical focusing, image schema and metaphorical projection[28] manifested in terms of gestural metaphors, as will be discussed in later chapters (Chapters 5, 6 and 7), to aid in the expressionist[29] production of space. This may include elements of narrative but it does not have to be, and in fact is unlikely to be, a linear narrative. It could just as easily be anti-narrative[30] or non-narrative. [31]

From this expressionist production of space a listener may derive meanings. The way that the listener interprets these meanings depends on a number of factors including the amount of emphasis that the composer puts on the transmission of the interpretation, either by the explicit use of the signs in the structure of the work or the explanation of how the work should be interpreted given in advance of any performance, for example in programme notes.

4.2.3 Differences between an anecdotal and a narrative structure

One dictionary defines narrative as

> " ... giving an account of any occurrence ... story telling ... a continued account of any series of occurrences ... "
> (Chambers Twentieth Century Dictionary, 1981)

and anecdote as

> " ... a short narrative of an incident of private life ... "
> (Chambers Twentieth Century Dictionary, 1981)

In my usage anecdotal is primarily expressing emotional and psychological

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[28] For further information on of metaphorical focusing, image schema and metaphorical projection see 5.2.1.
[29] Expressionist is used to mean that which is expressive of personal experience.
[30] " ... works which rely on the listener's expectation of narrative, but frustrate it through continual interruption of the work's temporal processes and proceed by change without narrative transformation ... " (Pasler 1993: 25).
[31] " ... works that may use elements of narrative but without allowing them to function as they would in a narrative ... " (Pasler 1993: 25).

states, inner realities rather than the outer realities that might be described in a narrative. Some basic differences and similarities between anecdotal and narrative are as follows :

Anecdotal Structure	**Narrative Structure**
Personal	Need not be personal
Expresses	Describes
Experiential	Observed
An exploration of feelings	A story of occurrences
Internal	External
Sensing	Objectifying
Unconscious	Conscious
Non-linear	Can be linear
Can be anti-narrative	Cannot be anti-narrative
Can be non-narrative	Cannot be non-narrative
Complex layers of meaning	Not necessarily complex
Uses recognisable sounds	Uses recognisable sounds

Both narrative and anecdotal structures rely on the use of sounds which have a recognisable source or imagined source, sounds whose association, real or imaginary, is known or surmised.

4.2.4 Elements of narrative and anecdotal structures

1. External factors: packaging and programme notes.

The title of the work, programme notes or the performance context of a work act as a guide to the listener by suggesting the composer's intentions and offer some sort of indication as to how the listener may want to approach the work. In other words the audience has been primed to look for certain connections and features before the piece begins and is therefore partially instructed on how to decode what they receive from it.

This can be equally true of narrative or anecdotal structures.

2. Internal factors: the use of recognisable and associative sound objects or signs.

Cues and clues in the music have to come from the use of recognisable and associative or indicative sound objects. These sound objects are easily recognisable as to their supposed source, as opposed to their real source, *and* have relatively

widespread extra-musical associations in that they provoke an extra-musical response, certainly for the composer and possibly for the audience, although these may not be the same for any two people, or indeed for the same person at any two listenings. I will now refer to these as signs.

This is also equally true of narrative or anecdotal structures.

3. Internal factors: how universal the signs are.

This means how strong and universally understood the relationship between the sound objects used and the associations or the concepts embodied in those sound objects are. This is dependent on the choice of sound objects and the socio-cultural background and emotional and psychological experience of the listeners. In a narrative it is not essential for any concept to be embodied in the sound objects. They can be purely referential on an objective level, i.e. the sound of a bird singing signifies nothing but a bird singing. In other words the sound of the bird singing is a simple sign for a bird.

4. Internal Factors: How explicit the composer has made those signs in the musical structure

Mere recognition of the sound object and its intrinsic associations is insufficient. The sound of a train can be recognised and identified as to its supposed source, but the structure in which that train is placed gives clues as to what the train actually signifies to the composer or to how the composer might have used that sound object.[32] In some cases the train will be a purely timbral object, in others it will be something that takes on further significance from its context, development and accompanying material. Its significance will be made clear from the other sound objects and signs that it is placed with and how it relates to them to form a matrix of extra-musical meaning for the composer or, as Nattiez (1990) has termed it, *a*

[32] This is again related to the two kinds of mimesis and discourse identified by Emmerson, the features of sonic landscape identified by Wishart and the indicative fields identified by Smalley.

symbolic web. The degree to which this may be made explicit to a listener may depend on a number of things:

a) Is the sound sign used in a way that is obvious or ambiguous? For example, is it in the foreground or background? Is it half heard or very clear?

b) Is the sound object part of a structure, network or field that emphasises its significance primarily as an associable sound object? Is it used with other sound objects that embody the same associations or contrasting associations?

c) What proportion of sound objects used is recognisable and associable? Can conceptual or narrative links be made between them?

d) Has the composer developed gestural metaphors? How does that sound behave? What is the relationship between the sound object and its metaphorical meaning? Can a sound have a metaphorical meaning in isolation from other sounds?

An investigation of use of many compositional elements in the development of gestural metaphor will follow in later chapters.

The development of anecdotal structure in *Nesting Stones*, *Invisible Crowds*, *Bath*, *Hidden Lives* and *Scan* will be discussed in Chapter 7.

5. THE POSSIBILITIES OF MOTION AS A COMPOSITIONAL PARAMETER

The preceding chapters (1, 2, 3), contained an investigation of various aspects of space as a compositional parameter. This investigation focused primarily on kinds of spatial mimesis (2.2, 3), as well as characteristics or features of spaces that might be interpreted metaphorically (1.4). There has also been an investigation of choice of sound material (4.1), and of the narrative and anecdotal structuring of that material (4.2).

This chapter is about the compositional use of motion (of sound in space), particularly motion that is mimetic of non-musical experience, its relationship to metaphor, and its use in some of the works presented.

5.1 Introduction to aspects of motion in music

Pitch, melody and harmonic organisation are all commonly expressed in terms of spatial and motion metaphors. Pitch is thought of as 'high', 'low', 'rising' or 'falling'; a melody is perceived in terms of the movement between its beginning and the end, and

> "Chords are spaced, open, filled or hollow. They spread over the stave, strain asunder, tend away from or toward their neighbours. They provide the primary experience of a spatial (as opposed to a temporal) *Gestalt* in music: of a unity which crosses distances, and which can be grasped all at once."
>
> (Scruton, 1997: 71)

Zuckerkandl (1969) tells us that St Augustine described the nature of music as 'ordered motion', and since then, throughout history, music has been variously interpreted in terms of motion, an example of this is Hanslick's description of music as 'tönend - begwegte Formen' ("forms moved through sound") (Scruton 1997: 235). Musical motion, or motion in music, can relate to pitch, harmony, dynamics or timbre and texture. Each of these different areas of motion can be applied to one or many sounds or sound objects and to small and large organising structures in a music or sound work.

According to Zuckerkandl, motion in music is not the motion of the external world or the motion of the internal world or the psyche but of a third stage

> " ... what takes place on the "third stage" is directly perceptible only by the ear ... "
>
> (Zuckerkandl, 1969: 146).

Indeed most of this motion is from one place (virtual or otherwise) or one state to another, and as such is a musical evolution, from high to low, for example, or from harmonic to discordant.

It is possibly true to say that there will always be motion in music. Music is primarily a time-based art form so there has to be some kind of motion or evolution in terms of the composition itself or of the perception of the listener whilst engaging with the composition. In music composed to be played over a loudspeaker system, however, there is the compositional possibility of perceived movement between aural locations. This is a compositional parameter that can be manipulated and controlled by the composer in a way that draws on perceived, conceived and lived experiences of motion.

5.2 Motion, mimesis and the production of metaphor

The compositional possibilities of *spatial* mimesis in the production of musical space have already been discussed in an earlier chapter. *Motion mimesis,* is, like spatial mimesis, informed by our perceived, conceived and lived experiences of motion in our everyday involvement in spatial practice, representations of space and representational space. There are many different experiences of motion that may be called upon. Some of these categories of motion mimesis have already been touched upon - for example, the simple social motion mimesis employed in *Fallout* (3.3).

This chapter will concentrate on two main kinds of motion mimesis:

1. *mental motion mimesis* derived from lived emotional experiences, moods and emotional states and

2. *physical motion mimesis* related to the body's experience of movement and

gesture.

In 1.4 there was a brief discussion of our ability to describe one thing in terms of another, with particular regard to the use of orientational metaphors (Lakoff and Johnson, 1980), such as 'I'm feeling *low*' or 'You're in *high* spirits'. In using terms from spatial orientation to describe something else, often emotional or physical states, a kind of *metaphorical transduction* occurs where one thing is experienced in terms of another.

This kind of metaphorical transduction is commonplace in music. We frequently use terms derived from our experience of the body to describe the quality or character of motion in music. A composer will use terms such as *agitated*, *restless, clumsy, forceful* or *languid* and a performer will interpret them according to his or her own experiences of the physical manifestation of mental or emotional states. In *The Meaning of Music,* Carroll Pratt (1931) puts forward the hypothesis that we have outside body experiences that are objective and experiences that belong to or are within the body which are subjective. We have movements both of and in the body which we feel by kinaesthesis and organic sensation. When we describe these sensations we use words that signify the qualities of bodily motion that we experience, - for example, agitated, restless, weak, forceful - but these words apply equally to the dynamic character of movement. They can, therefore, be used to describe other kinds of movement, such as movement in music and so music, or rather the perceived pitch patterns in music, can be said to embody these characteristics. The interesting thing about this idea is that musical movements have properties very similar to the characteristics of felt bodily movements and that emotions are described by terms for these characteristics because they include feelings with these characteristics. Although Pratt (1931) relates this view to pitched music, the motion of sound in space in electroacoustic music can be used to create motifs of felt bodily movements.

The metaphorical transduction described above is a two-way process involving both the composer and the performer and/or the listener. The composer can

use metaphor in order to translate one or many experiences of space or motion into the creation of different experiences of space or motion in a composition. This involves a kind of *metaphorical focusing*. The listener or performer will transduce their experience of the aural space or representation of space or motion of the composition, through a link with their own experience of spatial practice by undergoing a kind of *metaphorical widening*. The subject of this thesis is composition rather than reception and will concentrate on the first part of this process.

In order to use mimetic experiences of space or motion as a compositional parameter the composer has to translate one or many lived experiences of space (spatial practice), gathered by several senses. This information or experience needs to undergo some sort of metaphorical transduction to inform the production of a representation of space, in this case a musical or sound work. Some metaphorical transductions have more direct relationships between the lived experience and the compositional representation of it than others. Physical motion mimesis involves a simple transduction between the experience of bodily gesture and its translation into motion within the virtual space of a composition. The kind of gesture that is experienced has the same form in its compositional manifestation. This is a *first degree* metaphorical transduction. Other metaphorical transductions are more abstracted. Mental or emotional motion or spatial mimesis relies on a kind of *second degree,* or surrogate, metaphorical transduction in that the lived experience of the mental state needs to be transduced into a physical sensation before it can be translated into sound.

5.2.1 Image schema and metaphorical projection

According to Johnson (1987) we employ two kinds of imaginative structures in order to help us make sense of and understand the world that we experience as embodied beings. These are *image schema* and *metaphorical projections*, both are ways of achieving our imaginative restructuring of experience and both grow out of bodily experience.

Image schema are based on the

> *"recurring structures of, or in, our perceptual interactions, bodily experiences, and cognitive operations."*
>
> (Johnson, 1987: 79)

and as such are dynamic structures for organising our embodied experience for our own comprehension.

> "A schema consists of a small number of parts and relations, by virtue of which it can structure indefinitely many perceptions, images and events. In sum, image schemata operate at a level of mental organisation that falls between abstract propositional structures, on the one side, and particular concrete images on the other."
>
> (Johnson, 1987: 29)

Metaphor, on the other hand, allows us to

> " ... project patterns from one domain of experience in order to structure another domain of a different kind."
>
> (Johnson, 1987: xiv-xv)

In this way, image schema derived from physical embodied experience are used as structures which can be projected by metaphor onto more abstract domains. This is similar to the metaphorical transduction discussed above. The composer can transduce physical experience of motion into mimesis of that motion in a composition. The image schema acts as a kind of template in the more abstract domain of the composition.

Embodied experience is crucial to our experience of reality. According to Johnson,

> "Our reality is shaped by the patterns of our bodily movement, the contours of our spatial and temporal orientation, and the forms of our interaction with objects. It is never merely a matter of abstract conceptualizations and propositional judgements."
>
> (Johnson, 1987: xix)

By using image schema formed from our experience of repetitive and recurring embodied structures in the real world, in the world of spatial practice we form an inference structure for more abstract ideas. These metaphorical elaborations of image

schema give rise to form and structure in our experience and understanding. This is an automatic process, part of

> " ... *the way we 'have a world', the way we experience our world as a comprehensible reality.* Such understanding, therefore, involves *our whole being* - our bodily capacities and skills, our values, our moods and attitudes, our entire cultural tradition, the way in which we are bound up with a linguistic community, our aesthetic sensibilities, and so forth. In short, our understanding *is* our mode of "being in the world". It is the way we are meaningfully situated in our world through our bodily interactions, our cultural institutions, our linguistic tradition, and our historical context. Our more abstract reflective acts of understanding (which may involve grasping of finitary propositions) are simply an extension of our understanding in this more basic sense of "having a world" ."
>
> (Johnson, 1987: 102)

In using the sort of motion mimesis that uses metaphorical transductions or, to use Johnson's term, metaphorical projection, as a compositional parameter, it may be possible to bring experience of

> " ... shared human perspectives that are tied to reality through our embodied imaginative understanding."
>
> (Johnson, 1987: 212)

to the compositions produced.

5.2.2 Image schema, metaphorical projection and composition

The concept of musical structures derived from human experience is familiar territory. Blacking says that

> "Even the most elementary musical structures are *humanly* "significant forms" that have been created and assigned some meaning in culture."
>
> (Blacking, 1995: 36)

Blacking gives four types of musical communication that link the use of, what he calls *physical-associational* and *mental-associational* levels with musical structure. These types of musical communication relate to this discussion of the compositional use of the metaphorical projection of image schema and physical motion mimesis.

The four types of musical communication are:

1. When the rhythmic (ideal motion) patterns of the sound of music induces a purely physical state in the listener.

2. Where the musical pattern is a representation of a social situation (as discussed in terms of social spatial mimesis earlier).

3. Where the musical pattern is associated with a social situation and with meanings that that situation has to individuals. In this case

> " ... it may be selected and musically developed in order to heighten the emotional effect of words or of a stated program, which need not be specifically related to the social situation that the sound represents. ... The existence of learned responses in any culture enables a composer to communicate with music by skilfully employing culturally significant sounds together or in juxtaposition. "
>
> (Blacking, 1995: 41)

4. Where music expresses ideas about aspects of society through its own structures. Blacking includes aspects such as the arrangement of intervals, harmonic changes, but this could include the use of mimetic motion, which

> " may ... be able to express extramusical concepts because they have been ordered according to the socially derived "program" of the composer's mind."
>
> (Blacking, 1995: 43)

Most of the work that Blacking cites here involves the relationship between melody and the power of music to communicate emotion and ideas dependent on the social and cultural context. He quotes Finkelstein (1947) in stating that

> "A composer's "style is dictated by the kind of human beings and human emotions" he "tries to bring into his art, using the language elements of his time" ... "
>
> (Blacking, 1995: 48)

Blacking's view that composers should be consciously expressing their inner experience in the "language" of their societies and cultures is of particular interest to me in terms of the development of a compositional language for the expression of personal experience and I shall now look at how this relates to the two kinds of motion mimesis that were mentioned earlier namely physical motion mimesis and mental motion mimesis.

5.2.3 Physical motion mimesis: experienced motion - gesture

Earlier on we identified physical motion mimesis as a first degree metaphorical transduction between a physical bodily experience and the musical motion derived from that experience. This experience will primarily relate to gesture. Denis Smalley has written about gesture as an action indicator, something that has a cause whether we can perceive it or not. It is related to

> " ... not only ... the physical intervention of breath, hand, or fingers, but also to natural and engineered events, visual analogues, psychological experiences felt or mediated through language and paralanguage, indeed any occurrence which seems to provoke a consequence, or consequence which seems to have been provoked by an occurrence."
>
> (Smalley, 1986: 82)

I, however, am referring specifically to bodily experienced gesture, an action or series of actions that recur or are performed repetitively enough to form an image schema. The sort of gesture that is related to "visual analogues, psychological experiences felt or mediated through language and paralanguage", that is, other forms of physical motion mimesis, will be discussed below.

Bodily experienced gestures along with other forms of motion mimesis are metaphorically transduced into musical gestures. Musical gesture here means an identifiable motion or series of motions in the work, the combination of the motion of individual or massed sound objects and their spatial distribution with all their many parameters and variations. The body gesture may be accompanied by a strong emotional association or be recognisably familiar in terms of body language, for example, a shrug of the shoulders may indicate non-involvement, or it may just be an action demanded of a situation, or a matter of expediency or necessity, such as picking something up off the floor.

In 1.2 there was some discussion of body experience as a way of perceiving and understanding the world, and how this has recently become a subject for cultural debate. This debate includes issues of embodied experience and difference. 2.2.6 contained a brief look at the use of the bodily experience of movement and gesture in

the creation of a musical work. Both Blacking's ethnomusicological or anthropological viewpoint and the recent feminist viewpoint point to the fact that bodily experience differs among individuals. It follows therefore that there is little universal about anything that might arise from this experience of gesture or indeed its transduced musical gesture. The body's experience is individual, forged from the particular mix of gender, class, place of birth, ethnicity and so many other issues, and musical gesture, whilst being a recognisable concept, can also not be taken as universal in detail, but personal and experience - specific.

The work that employs the most conscious use of gestural motion mimesis in the works presented is *Nesting Stones*. I shall also consider *Scan* from this viewpoint.

5.2.4 Physical motion mimesis: observed motion - texture

Image schema are not only derived from embodied experience, they can also be what Smalley (1986) has called

> " ... visual analogues or psychological experiences felt or mediated through language and paralanguage ... "
>
> (Smalley, 1986: 82)

There is a kind of metaphorical projection which involves embodied experience being translated into parts of speech in order to express something other than physical action. Examples are expressions such as *get off my back* or *I'll pick myself up and start again*. These are a little like the orientational metaphors (Lakoff and Johnson, 1980) referred to above and are using terms from spatial orientation to describe emotional or physical states. We have already mentioned above how this kind of metaphorical transduction is commonplace in music and how the composer may choose to use the image schema to produce a gesture in aural space. The composer may also derive image schema, templates for musical motion, from observed motion (Smalley's "visual analogues"). The compositional motion mimesis derived from this could include internal texture or patterning as well as gesture. The

work that employs the most conscious use of observed motion or textural mimesis in the works presented is *Bath* which I shall consider below.

5.2.5 Mental motion mimesis

This is the kind of mental motion mimesis which is derived from lived emotional experiences.

Mental experiences often have physical attributes and when we experience those physical attributes we may ascribe a mental state. We have seen how this kind of metaphorical transduction is commonplace in music . We use terms derived from our experience of the physical manifestation of mental or emotional states to describe motion in music, and music is thus said to convey emotion. We can also, however, derive image schema from our own experience of the dynamics of flow and rest in our bodies. Sometimes these image schema will bear a direct relation to the physical attributes of mental states, sometimes they might derive from our visualisations of what is actually happening in our bodies or what seems to be happening in our minds. We are used to these kinds of metaphorical transduction in language and often describe mental states, moods, mental tensions and resolutions in terms of movement metaphors, such as I feel myself *sinking* into depression; I'm *pulled* both ways; the walls are *closing in;* my mind is *shutting down;* my mind is *racing;* or *textural metaphors* such as my thoughts are *crowding in;* I need to *clear* my head.

The work that employs the most conscious use of mental motion mimesis as a compositional parameter in the works presented is *Invisible Crowds* which I shall consider below.

5.2.6 Features of motion as a compositional parameter

Any gestural motion can have a number of characteristics or features which could include:

Feature of movement	Compositional characteristic	Detail of movement	Variables
velocity	speed	Fast / slow	accelerating / decelerating
dynamics	volume	loud / soft	crescendo / decrescendo
continuity	flow	continuous / interrupted	
trajectory	direction	across, back and forth, front / back circling, up / down, near / far	motivic / changing coming forward / moving backwards
mimesis	recognisability	motion mimesis is: physical / gesture physical / observed mental social	
energy	force	energetic / little energy	energy dying away / energy increasing
rhythm	repetition	regular/ irregular	becoming more or less regular
other variables	pitch	high / low	getting higher / getting lower, changing between high and low

Figure 5:1 Features of motion as a compositional parameter

Many different motion effects can be produced by various combinations and variations of qualities and morphologies. For example, a circling motion could be up / down, fast / slow, accelerating / decelerating, moving forward / backward, moving from side to side, continuous / discontinuous, forward / backwards all of which would have a different morphological characteristic.

I started to explore the effects of varying the characteristics of motion early on in my work due to the particular sound reproduction system that was used in

Sparks in the Dark (see *Figure 1* in 3.1). From this work I developed basic movement and motion motifs which have been explored in subsequent work.

All the motion qualities detailed above can be applied to one sound object or many sound objects. Those sound objects could be the same, similar or different. When there are several sound objects acting together they produce, from the spatial motion of massed sound objects, a kind of motion texture, which may also have distinct characteristics or qualities.

5.2.7 Features of motion texture

This refers to the textures, density, relational proximity, location in virtual three-dimensional space, movement morphology and individual gestural qualities of massed sound objects.

Sound objects with different kinds of motion with different characteristics can be combined together to create different dimensions, dynamics, kinds of spatial and motion mimesis or spatial and motion metaphors. There could, for example, be many different things happening in both the foreground and background, in counterpoint to each other, or the density of events could be sparse; events might be moving at the same speed or at different speeds; movement might be contrasted with stasis. The extraordinary and unique ability of sound, of all the arts, to 'surround and embrace' the listener means that these variables can act as a metaphor for so many embodied experiences.

5.3 Motion mimesis in *Nesting Stones*

In *Nesting Stones* physical motion mimesis, bodily experienced gesture and mental motion mimesis are used as organising structures.

I have already mentioned the choice of sound material in *Nesting Stones* which is mainly derived from human utterance (4.1.2.1), and the use of an overall anecdotal structure to communicate an aspect of my own internal experience (4.2).

My aim in *Nesting Stones* was to create metaphors, gestures and structures in the piece which represent in some way both aspects of my relationship with my daughter and also my daughter's changing relationship with the world.

The piece is broadly based on the intense dichotomies in the child / parent relationship, the claustrophobia and mutual dependence; the child's emotions and growing sense of self; the changing and widening boundaries of the child's world, and the perpetual movement, restlessness and curiosity of children. Some of these factors are experienced, bodily and emotionally, some are observed.

The main element of motion mimesis in *Nesting Stones* are:

Mental motion mimesis derived from lived emotional experiences:
- aloneness and isolation
- communicating
- perpetual motion
- the changing and revaluation of my personal liberty
- moving on
- enclosing
- soothing
- smothering
- massing
- closing in

Physical motion mimesis: observed motion
- running away
- restlessness
- exploring
- expanding her world
- moving on
- all over the place

Physical motion mimesis: experienced motion
- embracing and encircling
- pulling in opposite directions
- letting go
- perpetual motion
- moving together
- moving apart

The main *features* of motion mimesis in *Nesting Stones* are:
- dissonance and harmony
- reflection or call and response
- episodic
- cause and effect
- changes of speed and tempo
- energetic

In *Nesting Stones* I worked with the sound material to try and develop a range

of movement templates that are both musically appropriate and derived from the image schema of my experience of these things. In the following chapter I shall show how these movement templates work with the anecdotal structures and the sound material throughout the piece.

5.4 Motion mimesis in *Invisible Crowds*

Invisible Crowds primarily uses mental motion mimesis with particular regard to the compositional use of the parameters of texture and density. The experiences of space that I have drawn on are those of physical and mental aloneness, solitude and interruption and physical and mental overcrowding, all of which can be welcome or unwelcome.

It was already mentioned in 4.1.1.2 how in *Invisible Crowds* I conceptualised the sounds as thoughts and thought patterns. The motion mimesis used in the piece is related to the way that I have experienced the workings of my mind through various emotions and mental states.

There is actually, relatively little motion in *Invisible Crowds,* but the first six minutes of the piece is one long evolving motion trajectory. It starts with a single pitch which is soon thickened by the entrance of other single pitches in similar rhythm. Each of those pitches is at a breathing rhythm and fades away before it repeats. This suggests an atmosphere of calmness. As more pitches join and the texture becomes thicker it also becomes rhythmically more complex as the attacks of the sounds all start at different moments. The entrance of a spiky, more jagged, sound adds a temporary contrast in texture but it soon fades away. A slightly more discordant, continuous sound enters. It lends a slight air of menace or expectancy as it becomes thicker and louder and seemingly closer. The pace of entry of various textures of sounds speeds up, they enter, loom closer, and fade away. Wave upon wave of more disturbed movement enters, gradually getting lower and lower in pitch until things move to a small crescendo which heralds the entrance of a different kind of textured continuous sound, which varies in homogeneity, volume and high frequency

content. The space has widened out considerably from the beginning, there is a greater variety of sound, at different pitches, with different movement, mostly not distinctly gestural, and gradually the bell sound that alternates between left and right fades up. This bell is slow at first, accelerating and becoming louder and moving more into the forefront over the backdrop of sound. It becomes definite in direction against the more ambient directionless background. The bell speeds up and becomes more and more insistent and concrete, until, at just over six minutes, it ceases. Any semblance of the original opening texture which was still in evidence throughout the preceding six minutes has been lost. Now, a variety of sounds enters in groups and singly, at various volumes with various motions and with a wide variety of texture, pitch and envelope. Soon, a drone sound, which has more in common with the opening sound, can be heard as a backdrop to all this and there is a period over which the continuous background gradually reasserts itself over the fractured foreground and itself becomes the foreground. As the fractured sounds fade away they are replaced by a continuous sound with more homogeneity but with a variable texture and volume before ending on a brief quiet and single peaceful sound.

In 4.1.1 I talked about *Invisible Crowds* with specific relation to the sound material used, here I refer to it with regard to mainly motion and texture. Both descriptions bear similarities. In the next chapter I shall be discussing the difficulty of discussing any single part of a composition without reference to all the other parts.

5.5 Motion mimesis in *Bath*

The motion mimesis in *Bath* is based on the observed motion of water. Water also provides the sound material for *Bath*. The motion used in *Bath* is much more abstracted in terms of mimesis than that employed in either *Nesting Stones* or *Invisible Crowds* and cannot be easily identified through the piece.

Before starting to compose *Bath*, I made a list of all the associations that I could think of regarding water and wetness. These included:

cleansing, dissolving, baptism, christening, drowning, beginning of life, the myth of Narcissus, *mirroring, reflecting, flowing, dripping, bathing, washing,* drought, fertilising, sex, *floating, swimming, tides*, fish, unborn babies, divination, *wells, caves, swimming pools, rivers, streams, sea, waves*, dams, energy, reservoirs, *rain,* mist, fog, clouds, dew, *circulation, spherical form, rhythm, rippling, dispersing, dissolving, melting, lapping, being contained, supporting and colonising ...*

This list is not exhaustive but gives an idea of some of the many possible associations of water. The elements shown in italic are all suggestive of image schema which might be used for motion and texturing sound objects in *Bath.*

Bath starts with a single category of sound, in this case a drip sound. The initial single drip sound is gradually joined by more and more drips of varying pitches and rhythms, all of which widen out spatially in terms of left and right, and front and back perspective. This continues until the first 'pouring' introduces a new sound which actually enters with a kind of bifurcating motion, fading in from the rear centre and dividing to the front hard left and right before fading away. This is not in any way mimetic of the observed motion of pouring or indeed any other observed motion of water, but it serves to place additional low drip sounds in the hard left and right locations. Meanwhile, the space is becoming more reverberent and full, like a cave or well. The pouring repeats until the scene is shifted into a series of watery or water-related locations. There is very little motion mimesis in this section but natural spatial mimesis is used in order to make the scenes as recognisable as possible. These scenes fill the panorama between the speakers until it all 'goes down the plughole', coming back to the centre and fading away.

The next section uses less recognisable sound material and uses parameters of texture and motion to suggest image schema derived from the observed motion of water spouting, bubbling, running away, water in a state of constant motion and turmoil and the motion of floating objects in water.

The overall structure of *Bath* is like that of the reflective mirror of still water. It is not an exact mirror structure but the piece returns at the end to the same place that

it started.

5.6 Motion mimesis in *Scan*

There is no real compositional use of motion mimesis, as we have defined it here, in the music for *Scan*, but much of the choreographed movement was derived from the dancers working with metaphorical projection and image schema derived from their experience of the workings of their bodies both seen and unseen. The choreography of *Scan* was thus partially derived from physical and mental motion mimesis resulting in visual body imagery, rather than music, based on image schema.

6. TOWARDS AN EXPRESSIONIST PRODUCTION OF SPACE

The use of space, motion and choice of sound material have been examined individually in the preceding chapters. This chapter concerns the combination of those parameters particularly as they pertain to an expressionist production of space.

Before that, however, there will be some further discussion of *Fallout* which uses space, sound material and motion in a different way from the other pieces discussed to produce a work that is not expressionist, but that could be described as a sonic landscape.

6.1 Creating a Sonic landscape: *Fallout*

Earlier in this text Trevor Wishart's (1985, 1986) ideas of sonic landscape were discussed with particular regard to the creation of real and unreal space and the behaviour of sound objects in space (2.2.3). In *Fallout*, environmental, social, physical, visual, architectural and aural spatial mimesis are used to create the perceived acoustic space, a virtual theatre, based on the experiences of *Sparks in the Dark* as discussed in 3.3. In terms of sonic landscape this is an imaginary space based on experiences of real space. Within this space sound objects come and go. The sounds used are not directly representational as discussed in 4.1.1, but the disposition of sound objects within the space and their motions are mimetic of the motion of observed social motion, the entrances and exits and interactions of individuals and groups of actors in a real theatre space. The space and motion employed in *Fallout* is mimetic of real world experiences but the sounds themselves are not so directly representational.

Fallout has a simple narrative structure as defined in 4.2.1. The compositional intention was to produce a narrative in the third person. My decision to base *Fallout* on a section of *Sparks in the Dark* gave rise to a number of problems. The original musical ideas had been developed, following the director's instructions, for theatre

and had been part of a total theatrical experience, in which the story line and live action provided information and context. There was also the problem of the translation of the spatial effects of the surround sound system onto a stereo system (as has already been discussed).

In writing the concert piece I intended, as far as possible, to maintain the original use of space and motion in the music, and to suggest some idea of the original story line, or at least the emotional and artistic feel of the content, from the live show. This meant extending and developing the original musical ideas to incorporate aspects of the narrative and of setting the scene that had originally been supplied by other elements of the performance.

The section of *Sparks in the Dark* that formed the basis for *Fallout* was the wedding scene. The music for the wedding march consisted of a central repeating ostinato, the individual elements of which came from positions which surrounded and included the audience as if they were wedding guests rather than spectators. The emotional content of the scene is powerful, savage, emotionally desolate, ritualistic and sacrificial. The ostinato was an electroacoustic tape part and, in performance, it was mixed with live, electronically treated fiddle which screamed around the loudspeaker system. In *Fallout* I kept the original ostinato and tried to evoke some sort of musical equivalent of the live action by trying to create a sonic stage on which to 'set' the action.

Fallout employs a narrative structure to relate a simple musical tale of comings and goings, it does not draw on embodied physical or mental experiences and has no relation to my inner world or to my own real world experience, excepting that it does in some way represent a music theatre experience that I had a very active role in creating.

In my opinion *Fallout* lacks sufficient drama. Some of the exits and entrances need to be more dramatic or theatrical, and there should be more emphasis on the sense of movement and depth of focus. The resulting dissatisfaction with the narrative point of perspective in *Fallout*, however, set me on the compositional

trajectory of trying to find a language that was more expressive of my own experience.

6.2 Gestural metaphor - an expressionist production of space

In 4.2.2 there was an investigation of the use of anecdotal structure in relation to the explicit compositional intent of producing work expressive of personal experience. This may employ aspects of spatial mimesis of the kinds that were discussed earlier, a mimetic discourse in terms of recognisable or associative sound objects and motion mimesis incorporating image schema and metaphorical projection. This expressionist production of sonic space may include elements of narrative but it is not essential. The use of *gestural metaphor* as a smaller structuring device was also mentioned.

In Philosophy in a New Key (1976), Langer tells us that

> " ... music is not self-expression, but *formulation and representation* of emotions, moods, mental tensions and resolutions ... "
>
> (Langer, 1976: 222)

Aspects of our

> " ... "inner life" - physical or mental ... have formal properties similar to those of music - patterns of motion and rest, of tension and release, of agreement and disagreement, preparation, fulfilment, excitation, sudden change, etc."
>
> (Langer, 1976: 228)

Thus there is a similarity of logical form between music and subjective experience.

This similarity is conveyed by the use of "*symbolic forms*" (Langer, 1976: 224)

> " ... musical forms have certain properties to recommend them for symbolic use: they are composed of many separable items, easily produced, and easily combined in a great variety of ways; ... they have a remarkable tendency *to modify each other's characters in combination ...* "
>
> (Langer, 1976: 228)

In this way " ... music articulates forms which language cannot set forth." (Langer, 1976: 233) and reflects generalised rather than specific forms of feeling.

In Form and Feeling (1953) Langer says that

> " ... music is "significant form," and its significance is that of a symbol, a highly articulated sensuous object, which by virtue of its dynamic structure can express the forms of vital experience which language is particularly unfit to convey. Feeling, life motion and emotion constitute its import. "
>
> (Langer, 1953: 32)

In the works presented I have tried to develop a

> " ... musical system ... of symbols by which people learn to make public sense of their feelings and social life."
>
> (Blacking, 1995: 228)

I have termed my system of symbolic forms, gestural metaphors. A *gestural metaphor* is used to structure sound material in such a way as to create or augment its emotional or expressive associations. It links inner emotional states with the production, through sound, of spaces that are both expressionist and musical. In order to do this a gestural metaphor uses parameters of spatial mimesis; a referential and associative sound world and gestural and textural motion derived from physical and mental embodied experience through the use of image schema and metaphorical projection. The aspects of a gestural metaphor are unified by the compositional intent of expressing experienced emotional and psychological states. A gestural metaphor is a single, indivisible symbol and the pieces of my work that I shall be talking about below are made from a series of gestural metaphors.

Although the above features of a gestural metaphor have all been discussed earlier in the text, I shall summarise and, in some cases, expand on them in this chapter before moving on to discuss the development of gestural metaphor with reference to the works presented.

6.2.1 Features of a gestural metaphor: use of spatial mimesis

The space produced in a gestural metaphor will be influenced by real world experiences of space. Those experiences of space will be *conceived*: representations of space informed by evidence gathered and the workings of the imagination; *perceived*: the space or spaces of the social practices of a society and

experienced: the representational spaces that overlay the physical space that we live in.

Although these experiences of space are common to all, the details of the experiences will vary between individuals. Different groupings of individuals will have similar experiences in common according to age, gender etc. I have termed this compositional use of space, *spatial mimesis* which is the production of a representational space or representation of space influenced by experiences of spatial practice in a musical work. The spatial mimesis present in a work may be mimetic of different manifestations of social practice including mathematical, architectural, environmental, social, mental, physical, visual, haptic or aural as illustrated by Figure 6:1 below.

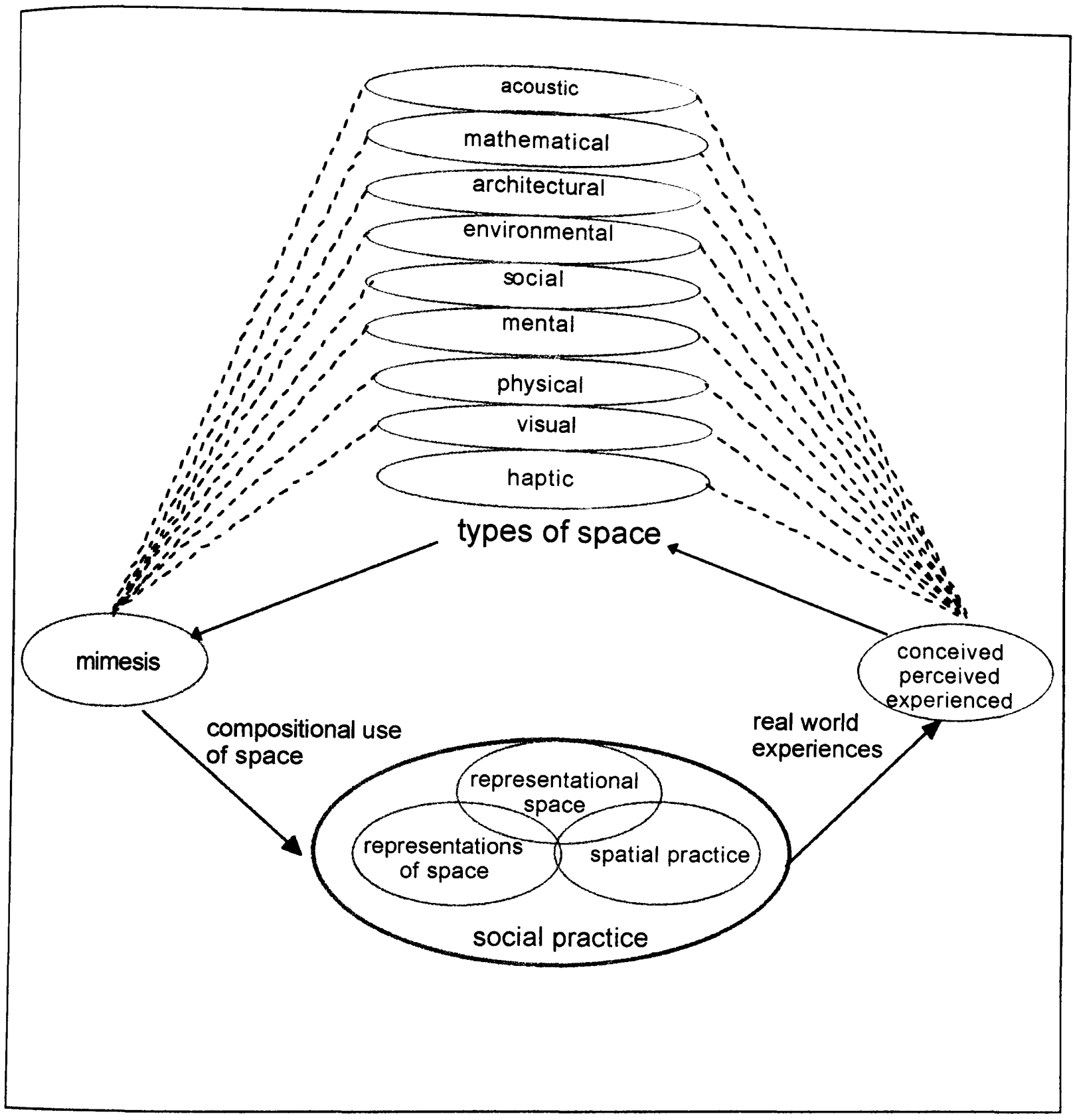

Figure 6:1 Relationship between real world experiences and compositional production of space

In a gestural metaphor space and its use *are* the language rather than an extra-expressive element or a backdrop for the action. They cannot be divorced. Space is an integral part of the events and activities with which it is implicated and as such relates non-musical experience of space to the experience of space in the music. This quotation from Tilley, a lecturer in anthropology and archaeology,

summarises these ideas

> " New geography and new archaeology considered space as an abstract dimension or container in which human activities and events took place. The implication of this perspective was that activity and event and space were conceptually and physically separate from each other and only contingently related. ... The alternative view starts from regarding space as a medium rather than a container for action, something that is involved in action and cannot be divorced from it. As such, space does not and cannot exist apart from the events and activities within which it is implicated. ... A centred and meaningful space involves specific sets of linkages between the physical space of the non-humanly created world, somatic states of the body, the mental space of cognition and representation and the space of movement, encounter and interaction between persons and between persons and the human and non-human environment. ... A social space, rather than being uniform and forever the same, is constituted by different densities of human experience, attachment and involvement. It is above all contextually constituted, providing particular settings for involvement and the creation of meanings. ... It follows that the meanings of space always involve a subjective dimension and cannot be understood apart from the symbolically constructed lifeworlds of social actors. ... What space depends on is who is experiencing it and how. Spatial experience is not innocent and neutral but invested with power relating to age, gender, social condition and relationships with others. "
>
> (Tilley, 1994: 9-11)

The works presented in this submission all use spatial mimesis. This is usually a mix of the conceived, perceived and experienced as illustrated in Figure 5.

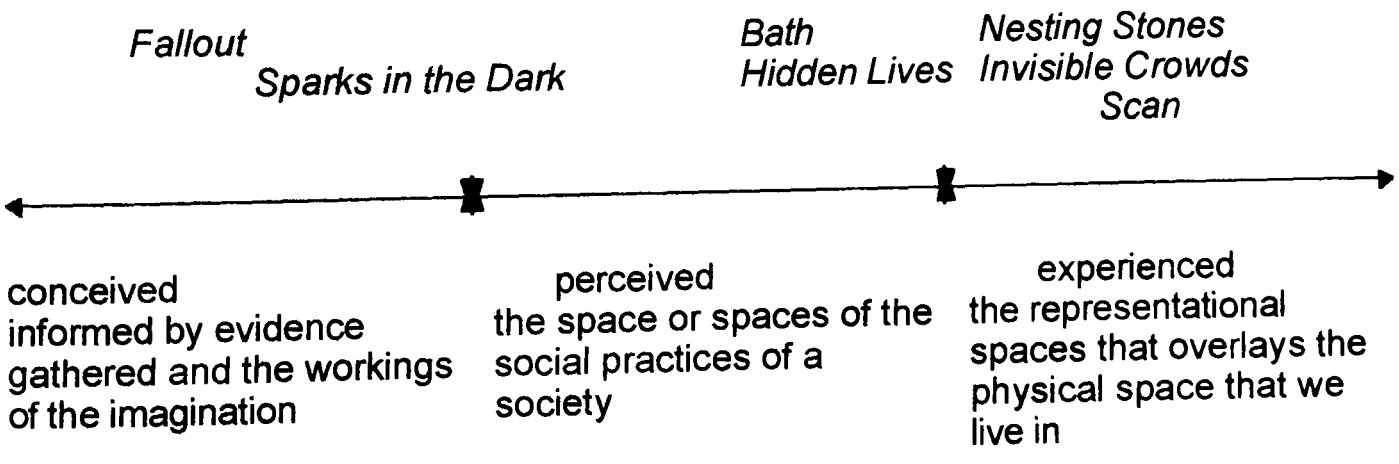

Figure 6:2 Experiences of space in the works presented

6.2.2 Features of a gestural metaphor: referential aspects of the sound world

There are three aspects of the sound world that are particularly relevant in a gestural metaphor:

1. the relationship between recognised and unrecognised sound objects;
2. the relationship between foreground and background sound objects;
3. the juxtapositions between individual and groups of sound objects and the referential and associative properties of the sound world.

There needs to be a balance in the relationship between recognised and unrecognised or abstracted sound objects. If every sound is easily recognisable then this could possibly overshadow other aspects of the gestural metaphor. The relationship between foreground and background sound objects and the relative dominance of sounds combined with the other qualities of the gestural metaphor is crucial at any given time. In a gestural metaphor the referential and associative properties of sound objects are often transformed or made more explicit by the other parameters of the metaphor.

6.2.3 Features of a gestural metaphor: motion

The motion in a gestural metaphor is a metaphorical projection of image schema formed from experienced or observed physical, emotional and psychological states. It can take the form of gesture or texture in the sense of the spatial distribution of massed sound objects and informs the motion of sound in the production of the space of the composition.

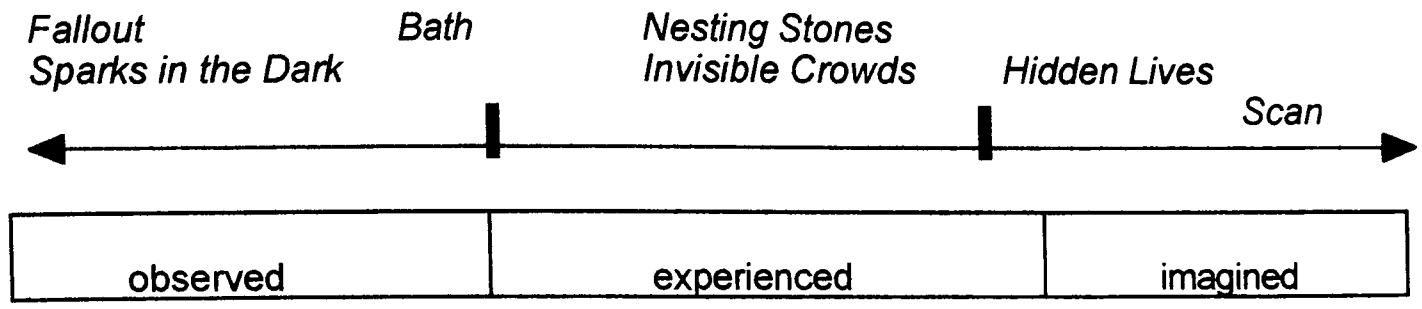

Figure 6:3 Types of image schema influencing motion in the works presented

6.2.4 Features of a gestural metaphor: metaphor

Metaphor is the way that embodied real world experience, particularly of emotional and psychological states, is transduced into compositional structure. Image schema are transduced from our embodied and observed and maybe sometimes even imagined experiences and the parameters of motion, spatial mimesis and the spatial distribution of massed sound objects are metaphorical projections of real life experiences of space and motion.

6.2.5 Features of a gestural metaphor: experienced emotional and psychological states

The last feature of a gestural metaphor is the compositional intent of expressing experienced emotional and psychological states. Some emotional experiences can be more easily expressed in this way than others, especially those that contain some notion of personal space in their description and so suggest an analogue or image schema which may inform the use of the other elements of the gestural metaphor. For example:

Emotion	**Suggested image schema based on**
Anger	conflict and argument
Love	caress and embrace
Sadness	aloneness and isolation
Paranoia	feeling locked in
Happiness	companionship and harmony
Claustrophobia	feeling closed in or unable to expand.

6.3 The gestalt of gestural metaphor

The elements of a gestural metaphor cannot be separated from each other. However the recipe, or combination of elements and the dominance of one over another may vary considerable from piece to piece. The parameters of motion and spatial distribution of sound objects are totally bound up with gesture but also with the referential characteristics of sound objects and experienced emotional and physical states. No elements can be separated out, but different elements can be at the forefront and so, changing one aspect of a gestural metaphor could result in a totally different interpretation. A particular sound object used in the foreground with a different sound object in the background will most probably acquire a different metaphorical meaning, in compositional terms, than another arrangement of sounds. A gestural metaphor is a gestalt for the experienced emotional and psychological states that are a part of the metaphor.

7. THE DEVELOPMENT OF GESTURAL METAPHOR

While gestural metaphor is not used as a structuring device for every piece in this portfolio, each work that does use gestural metaphor[33] emphasises and develops different aspects of it.

Before moving on to a more in-depth discussion of the use of gestural metaphor I should like to make a comparable summary of the uses of space, sound material and motion in the pieces presented in this portfolio. (See Figure 7.2 Elements of gestural metaphor in *Nesting Stones, Invisible Crowds* and *Bath*).

Of the pieces presented in this portfolio *Fallout* does not use gestural metaphor. *Fallout* uses the parameters of spatial mimesis, motion and sound material to create a sonic landscape as discussed in 6. 1.

Nesting Stones and *Invisible Crowds* both use an anecdotal structure and gestural metaphors transduced from experienced emotional and psychological states, and embodied experiences of motion, into social, mental and physical spatial mimesis in the composition. *Nesting Stones* uses sound material that is directly representational and *Invisible Crowds* uses sound material that is abstracted from the subject matter of the piece. However, these pieces have the purest use of gestural metaphor as a structuring device. *Bath* differs from *Nesting Stones* and *Invisible Crowds* in that, although gestural metaphor is used to structure sound material in such a way as to create or augment its emotional or expressive associations, it is not personal emotional states and psychological states that are being expressed.

Bath expresses the phenomenology of water and so gestural metaphor is being used to create an expressionist and musical space whose spatial mimesis,

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[33] The description of gestural metaphor that was given in the previous chapter is as follows:

sound world and gestural and textural motion is derived from physical and symbolic embodied experience of water perceived and conceived, through the use of image schema and metaphorical projection.

Hidden Lives and *Scan* are linked by their sound material which is all derived from human utterance. Each piece, however, has a different relationship with the sound material. In *Hidden Lives* there is a progressive non-narrative structure that mainly unfolds through the texturing that results from the treatment of the sound material. *Scan* has absolutely no narrative but uses the texturing of the sound material to create an overall metaphor. Both *Hidden Lives* and *Scan* can therefore be said to have metaphorical structure which is linked to an anecdotal structure but, rather than being made up of a series of gestural metaphors, use some of the features of gestural metaphor to structure the entire piece.

A gestural metaphor is used to structure sound material in such a way as to create or augment its emotional or expressive associations. It links inner emotional states with the production, through sound, of spaces that are both expressionist and musical. In order to do this a gestural metaphor uses parameters of spatial mimesis; a referential and associative sound world and gestural and textural motion derived from physical and mental embodied experience through the use of image schema and metaphorical projection. The four aspects of a gestural metaphor are unified by the compositional intent of expressing experienced emotional and psychological states. A gestural metaphor is an indivisible symbol.

	Type of Structure	Experience of space	Spatial mimesis	Motion	Relationship of Sound material and subject matter	Nature of metaphors
Fallout	narrative (sonic landscape)	Conceived/ Perceived	visual, environmental, architectural, aural, social	Observed	abstracted from subject matter	Metaphor for place (sonic landscape)
Nesting Stones	anecdotal	Experienced	social, mental, physical	Embodied	directly related to subject matter	Metaphors for experienced emotional and psychological states
Invisible Crowds	anecdotal	Experienced	social, mental, physical	Embodied	abstracted from subject matter	Metaphors for experienced emotional and psychological states
Bath	anecdotal	Perceived Experienced	mathematical, environmental	Embodied/ observed	directly related to subject matter	Metaphors abstracted from experienced states (symbol and myth of water)
Hidden Lives	metaphorical	Perceived Experienced	architectural, social, physical	Embodied and imagined	real but metaphorically related to subject matter	Metaphorical landscape (architecture and memory)
Scan	metaphorical	Experienced	architectural, physical	Texture motion imagined and embodied	real but metaphorically related to subject matter	Metaphorical landscape (architecture and physical body)

Figure 7:1 Structure, space, sound material, motion and metaphor in the works presented

7.1 The development of gestural metaphor: *Nesting Stones*, *Invisible Crowds* and *Bath*

The concept of gestural metaphor was largely developed through the production of these three pieces. In each of them the elements of motion, gesture and spatial distribution of massed sound objects are in spatial mimesis of extra-musical experience, derived from personal experience of spatial relationships. The personal experience informing *Bath*, however, has more levels of metaphorical transduction than the other two. The sound objects used are at their most personal with the human utterance used in *Nesting Stones*, whilst in *Invisible Crowds* and *Bath* the sounds are more distanced from personal experience. There is a trajectory of developing abstraction between the three pieces. In *Invisible Crowds* the referential character of the sounds is more abstracted from the experienced emotional and psychological states than in *Nesting Stones* and in *Bath* both the referential characteristics of the sounds and the experienced emotional and psychological states are more abstracted from direct embodied experience.

Title of piece	Motion/ gesture	Spatial distribution of massed sound objects	Referential characteristics of sounds	Experienced emotional and psychological states
Nesting Stones	Derived from experienced spatial relationships	Derived from experienced spatial relationships	Vocal utterance related to personal experience	Derived from personal experience
Invisible Crowds	Derived from experienced spatial relationships	Derived from experienced spatial relationships	Abstracted metallic sounds	Derived from personal experience
Bath	Derived from experienced spatial relationships	Derived from experienced spatial relationships	Abstracted water sounds	Abstracted from personal experience, derived from cultural experience

Figure 7:2 Elements of gestural metaphor in *Nesting Stones, Invisible Crowds* and *Bath.*

7.1.1 *Nesting Stones*: the start of the gestural metaphor

The starting point for the composition of *Nesting Stones* was the expression of experienced emotional and psychological states relating to a specific relationship in my life, that with my daughter.

I chose to write a piece that was loosely based on aspects of that relationship for a number of reasons: I wanted to express emotional states that might be shared by anyone that had ever had any kind of relationship with another person; I wanted to work through, in a therapeutic kind of way, some of the contradictions, passions, pleasures, and problems in that relationship; I wanted to reclaim that part of my life from the little compartment called 'family' that I generally hardly dare mention in my professional life and I wanted to write about something that was very personal to me.

I have already written about the sound world of *Nesting Stones* (4.1.2). This sound material was organised in ways that were designed to emphasise its emotional significance and expressive qualities according to the metaphorical projection of image schema transduced from my experience of physical and mental motion and bodily experienced gesture (5.3).

In *Nesting Stones* I was not trying to tell a story or describe my relationship with my daughter. I was trying to express the varying emotions and dynamics that I experience within that relationship through a series of anecdotal structures and gestural metaphors. These small and larger structures use sound objects, symbolically and associatively, to evoke structural characteristics of various internal states which are experienced in my real-life situation and conditions and experiences in my external world. As John Shepherd says in *Music as Cultural Text*

> " ... sounds in music never refer *directly* to people, events and objects in the external world. They either copy or evoke symbolically the sonic manifestations of those people, events or objects."
>
> (Shepherd, 1992: 142)

The reception of the piece will, of course be open to individual interpretation by listeners as they relate their own experiences and associations.

> " One person can never have direct knowledge of another person's thought and experience. They can only speculate as to the nature of the other person's thought and experience by interpreting the symbols that the other person utters."
>
> (Shepherd, 1992:145)

However

> "Music-lovers and fans take from music meanings implicit in their inner lives which are capable of being invested in or drawn from the music's sonic medium. If the range and variety of an individual's 'meanings' cannot be invested in or drawn from the particular music they are hearing, then it is unlikely that they will like the music."
>
> (Shepherd, 1992: 147)

I have often wondered if this means that this piece will be understood in these terms by parents in general and mothers in particular.

7.1.1.2 Organisation of *Nesting Stones*

I have included *Figure 9 Sectional organisation of Nesting Stones* to show, more explicitly, the use of gestural metaphor as a structuring process in the piece. The chart shows the overall *anecdotal structure* of each section - the context for the gestural metaphors; the inner emotional states or *emotional subtexts* for each section; the main features with regard to the *associations and references of the sound world*; the *physical and mental embodied experiences* from which the gestural and textural motion are drawn and the main *features of the gestural and textural motion* for each of the four sections of the piece.

	Section 1 to 4'26"	**Section 2** to 8'57"	**Section 3** to 11'30"	**Section 4** to 13'55"
Anecdotal structure	The child enters a terrifying and confusing world, alone and adrift. She tries to make sense of impressions, sounds, actions and cause and effect. I try to make sense of my new responsibilities	The world offered myself and other adults is surrounding, embracing, comforting and claustrophobic. My experience is also surrounding, embracing, comforting and claustrophobic	Bonding and fusion. We establish a mutually dependent relationship	Separation. The child stands up and names things in the world, which begins to be of its own making and perception. I have to come to terms with being one part of that world
Emotional Subtexts	Lack of control, chaos, helplessness, chain reactions	Loss of autonomy, new responsibility, desire to smother, inability to leave alone, intense fierce love	Mutual regard and love, mutual anger and resentment, battle for power and control, moving together, trying to escape	Development of language, desire for independence, letting go, not being able to let go
Associations and references of sound world	Distress sounds, over emphasised voice sounds, other body sounds, toy sounds	Voices	Vocal, child and adult. Contrapuntal harmony and disharmony	Child voices, words, songs, laughter
Physical and mental embodied experiences	Giddy, enclosing, bearing down, around every corner there is something new to be encountered	Enclosing, embracing soothing, smothering	Moving together, moving apart, changes of speed and tempo	Open, difficult to grab hold of, mischievous
Features of the gestural and textural motion	Episodic, cause and effect, moving on, encircling	Massing, embracing, closing in	Moving together, in harmony, in disharmony, moving apart, pulling in opposite directions	Energetic, all over the place, open

Figure 7:3 Sectional organisation of *Nesting Stones*

As has already been said, in a gestural metaphor the elements combine to add up to more than the sum of its parts.

Before starting the composition I loosely sketched the flow of *Nesting Stones* in terms of gestures, choices of source material and personal experiences. The rough plan was as follows:

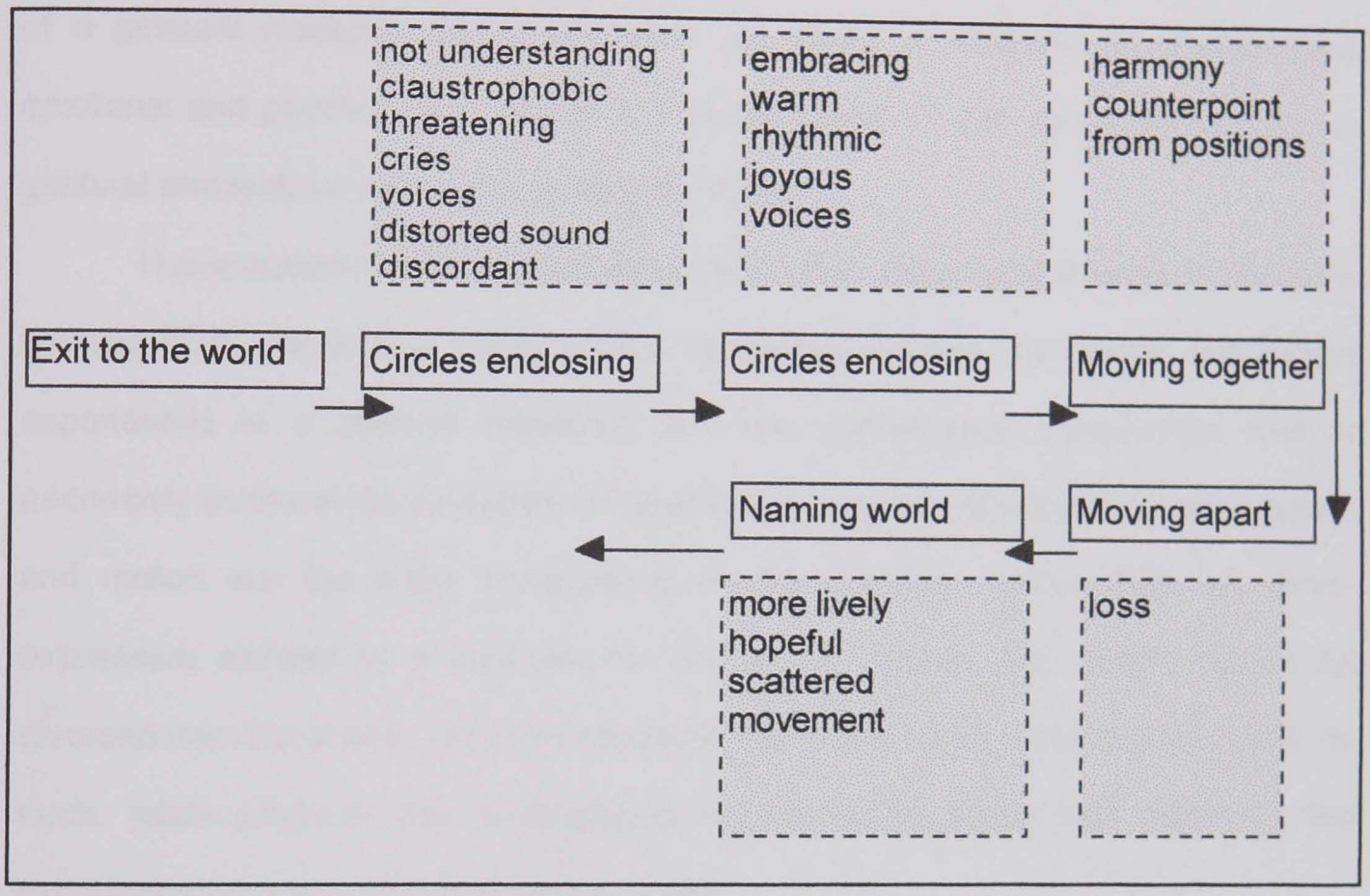

Figure 7:4 Flow of gestural metaphor through *Nesting Stones*

I have included the figure above showing rough outline of the overall structure of *Nesting Stones* because it serves to show how all the aspects of the gestural metaphors, choice of sound material, emotional experiences, physical gesture, image schema, and various musical parameters such as rhythm and harmony, were originally conceived together as part of a whole.

7.1.2 *Invisible Crowds*: gestural metaphor, motion, texture and emotional experience

In *Nesting Stones* I developed the use of gestural metaphors to structure sound objects in such a way as to augment and shape their emotional and expressive associations.

In *Invisible Crowds* I chose to work with sound material that is not so directly expressive of personal experience. This was in order to see whether the structures of a gestural metaphor would still work to create a metaphor for experienced emotional and psychological states if I concentrated on the compositional use of gestural and textural motion and spatial distribution.

I have already talked in detail about the motion and spatial mimesis in *Invisible Crowds* (5.4), about how bodily spatial experience informs the spatial and motion experiences in a gestural metaphor, and the metaphorical transduction that is necessary to inform the production of space. In a gestural metaphor the use of space and motion *are* the major components of the language, rather than an extra-expressive element or a backdrop for the action. Space and motion cannot be divorced from the action. They are integral to the sound events and activities and, as such, relate physical and psychological experience of space and motion to the experience of space and motion in the music.

Most of this previous discussion of the possible uses of space in electroacoustic music has been concerned with the virtual space defined by sound emanating from the loudspeaker configuration, a multi-dimensional stage for the unfolding drama that is enacted by the organisation of sound. I would now like to consider some aspects of social space that have not, as yet, been considered although they are also part of the production of that aural space.

The first aspect of social space is the communal experiential space shared by the audience as they listen together to a work in performance; the second, the internal psychological space experienced by the listeners as they engage with the sound world, its unfolding through time and its relationships with their individual

experiences and memories, and finally there is the internal psychological space experienced by the composer working through the process of making the piece.

The composer has the capacity to control, to some extent, all three categories. It may not be absolute control, because the composer is not able to account for the vagaries of the audience, their cultural backgrounds, listening skills, hearing mechanisms etc. The most obvious space that the composer has control over is the compositional space defined by the loudspeaker configuration. This can be manipulated and crafted by various means including the juxtaposition of the sound objects, their position in terms of background and foreground, height, left or right placement, their density, trajectory, speed and shape of motion. The mark of how well the composer can manipulate this space is down to technical expertise, and the tools at her disposal, but the mark of how *relevant* that manipulation is to the music is in its integration with the elements relevant to the other spaces into an aesthetic whole. In a gestural metaphor this particularly relies on the integration with the internal psychological space experienced by the composer working through the process of making the piece, her engagement with the relationships of the sound material with individual experiences and memories, and the manifestations of these in gestural metaphors which, to some extent, bear on these two other categories of social space. This is

> " ... the egocentric space perceived and encountered by individuals in their daily practices ... It is a space of personality, of encounter and emotional attachment. It is the constructed life-space of the individual, involving feelings and memories giving rise to a sense of awe, emotion wonder or anguish in spatial encounters."
>
> (Tilley, 1994: 16)

and of existential space which

> " ... is experienced and created through life-activity, a sacred, symbolic and mythic space replete with social meanings wrapped around buildings, objects and features... providing reference points and planes of emotional orientation for human attachment and involvement."
>
> (Tilley, 1994: 16-17)

In *Form and Feeling*, Langer (1953) talks about virtual space

> "The fundamental forms which occur in the decorative arts of all ages and races - for instance the circle, the triangle, the spiral, the parallel - are known as *motifs* of design. They are not art "works", not even ornaments, themselves, but they lend themselves to composition, and are therefore incentives to artistic creation. The word *motif* bespeaks this function: motifs are organising devices that gives the artists imagination a start, and so "motivate" the work in a perfectly naive sense. They drive it forward, and guide its progress."
>
> (Langer, 1953: 69)

This idea of fundamental form is similar to spatial organisation in a gestural metaphor. In a gestural metaphor the elements of space and motion are a motif for experienced emotional and psychological states. However, in electroacoustic music, as we know we can do more than use fundamental form. We can use sounds that are directly referential to specifics and so flesh out the motif. According to Langer, when more direct representation of objects enters the equation

> " ... imitation is never the main device in organization. The purpose of all plastic art is to articulate visual form, and to present that form - so immediately expressive of human feeling that it seems to be charged with feeling - as the sole, or at least paramount object of perception. This means that for the beholder the work of art must be not only a shape in space but a shaping *of* space - of all the space that he is given. When we investigate systematically all that is involved in this proposition, we are led ever to deeper and deeper questions, culminating in the problem of creation: What is created, and how is anything created, by the process of deploying colours as on a ground?"
>
> (Langer, 1953: 71)

The last question leads us to a consideration of the paints that an electroacoustic composer has at her disposal - the sound objects.

In *Invisible Crowds* there is very little concentration on the 'paint' or 'colours'. The sound objects have been chosen almost deliberately for their unobtrusiveness, their lack of direct association and their ability to be used in many different ways in terms of both spatial and sound texture. The experiences of space and motion that I have concentrated on in *Invisible Crowds* are drawn from experiences of feeling physically and mentally alone, mental overcrowding and interruption. I have already outlined in 4.1.1 how the sounds could all be thought of as 'thought patterns' organised according to image schema of experienced mental patterns of

concentration and interruption, and of peace and serenity and I have described the pattern of motion mimesis (5.4). Although *Invisible Crowds* does not contain the representational sound material that I have said is a vital part of a gestural metaphor, I enjoy the purity of its form, and feel that it does achieve something like a series of Langer's "fundamental forms", albeit simple ones. This observation led me to believe that motion, both gestural and textural, was the most important expressive tool for the development of my compositional language and it was these parameters that I set out to explore further in *Bath*.

7.1.3 *Bath* and the limits of gestural metaphor

Nesting Stones drew on sound material and emotional experiences that were personal to me, *Invisible Crowds* used sound material that was less personal but experiences that were personal to me, and *Bath* uses both material and experiences that are not personal to me leaving the parameters of gestural motion and spatial distribution of massed sound objects as the two remaining parts of the template. In *Bath* the informing emotional and psychological states are not drawn from personal experience but derived from cultural experience. In *Bath* I have used sounds derived entirely from recordings of water. This has already been outlined in 4.1.3. Like many electroacoustic composers I chose water because of its rich associations and symbolism. (Landy (1994) gives some examples of electroacoustic works concerned with water, they include *Terre de feu* by Francois Bernard Mâche, *Water Music* by Toru Takemitsu, *Gone Underwater* by Michel Redolfi, *Sud* by Jean-Claude Risset and *Riverrun* by Barry Truax.)

In 5. 5 I listed the associations of water and wetness that are suggestive of motion, and spatial distribution of massed sound objects that are the main parameters informing the gestural metaphors in *Bath*. In a gestural metaphor these translate as the gesture i.e. motion and spatial distribution of sounds or image schema which, combined with the innate referential characteristics of the sounds, act as a conduit for personal experience. Most of the image schema used in *Bath* are second-order

metaphorical transductions in that they are observed or perceived and then imagined as felt. Therefore the image schema are not formed from embodied experiences as in *Invisible Crowds* and *Nesting Stones* and, as a result, the motifs do not have the same degree of personal significance to me. This had repercussions in terms of compositional structure. As a composer I found the list of my associations with water and the richness of spatial motif possibilities almost oppressive, unlike other pieces where I was really only referring to a single state of experience and its variations, and I had too much non-musical data which I found difficult to deal with without the guiding principle of an experienced emotional state.

Bath, as a result, does act as a kind of test of the usefulness of gestural metaphor as an expressive compositional tool. With *Bath* I reached the limits of a particular trajectory of gestural metaphor. That is not to say that gestural metaphor has come to the end of its usefulness for me as a compositional structuring device, but in *Hidden Lives* and *Scan* I began to free some of its components from the single, indivisible symbol that is a gestural metaphor, as I shall discuss below.

7.2 The development of gestural metaphor: metaphorical structure, *Hidden Lives* and *Scan*

Title of piece	Motion/ gesture	Spatial distribution of massed sound objects	Referential characteristics of sounds	Experienced emotional and psychological states
Hidden Lives	Derived from perceived, conceived and experienced spatial relationships	Derived from perceived, conceived and experienced spatial relationships	Vocal utterance text is related to central metaphor	Derived from conceptual-isations of 'felt' experience
Scan	Derived from conceived and experienced spatial relationships	Derived from conceived and experienced spatial relationships	Vocal utterance	Derived from conceptual-isations of 'felt' experience

Figure 7:5 Elements of gestural metaphor in *Hidden Lives* and *Scan*

The image schema used in *Hidden Lives* and *Scan* are transduced from conceptualisations of 'felt' experience, not actually embodied in a physical way, but are nevertheless personally experienced. These image schema are second-order metaphorical transductions of lived experience. The sound material in *Hidden Lives* and *Scan* is all derived from human utterance but the texturing of that material is the most important factor. In both pieces this is structured in order to create a kind of metaphorical structure, based on a conceptualisation of something personally felt or sensed, but with no details of my own experience in it.

7.2.1 Hidden Lives and the development of a metaphorical structure.

The central metaphor of *Hidden Lives* is that of the house as a repository for memory. In a sense, *Hidden Lives* plays with different ways of representing the space of the house. It is a representation of an architectural entity and a virtual acoustic house

which is no longer a physical structure, but a space shaped and produced by the breaths, sighs, words of all who have inhabited it and invested its bricks and mortar with meaning and social significance over the time of its occupation.

> "The private house shelters life's vulnerable physiological processes"
> (Tuan, 1974: 28)

It is the representation of a space made by the social practice of its inhabitants, and as such the house is a symbol for the many lives that have been lived in it. There is no specific detail of those lives, no specific events and no specific occupants except that it is the woman's domain, traditionally a place that men visit and women inhabit. Men live in the house but women produce the space of the home by making it the centre of family life. As such, the house is located space, maybe located geographically, but the home is very much located in the psyche, in childhood memory and as such the house is a repository for memory. This has a second metaphorical interpretation, that of the mind as a repository for memory.

It is these aspects of house, its cupboards, shelves, wardrobes and bottom drawers that Bachelard (1969) speaks about so eloquently in *The Poetics of Space* where he furnishes us with, on the one hand, the house as a metaphor for the psyche, the inside of the head where snippets of memory are secreted away, put in drawers and hidden at the back of wardrobes, and on the other, the house as a metaphor for the universe.

The overall concept of the house as it is used in *Hidden Lives* can be seen as a spatial metaphor for many of the aspects of space identified by Lefebvre. It is a created aural space based on features of architectural space conceived according to familiar embodied experience of houses and the home. In creating this aural house as representational space it calls on experiences of social spatial practices with regard to the flow and rhythms of life in the house. It also refers to commonly shared metaphors relating to mental space and universal space as part of the representational space of the house.

As mentioned in 4.1.2, apart from the opening environmental recordings, the sound material is all taken from women and girls reading from *The Book of Hints and Wrinkles*, a manual of household management for women which dates from the 1930s. In *Hidden Lives* the sound material is chosen to try and extend the metaphor, and the treatment of the sound material is in itself metaphorical. Although this is not exactly expressive of personal experience in the sense of self-expression, it is the manifestation of a subjective experience and is directly related to the life of feelings and the inner life of memories. The house created in *Hidden Lives* is a symbolic form. It is a house made up of fragmented sound material which in itself is a metaphor for memory, loss and disappearance. In a gestural metaphor the sound material is structured in such a way as to create or augment its emotional or expressive associations. In *Hidden Lives* the expressive qualities of the sound material reside in the meaning of the text, which is never really perceived in its entirety, and in the tones and voices of the readers.

Hidden Lives moves from the pavements and streets of the outside world, through a door, along the corridor of memory and into the room of breath. This 'room' is constructed of breath sounds which start relatively sparsely and build in density. Gradually disembodied consonant sounds such as tt, ff, dd, are added, floating and moving around the room, the breathing fades out as more emphasised consonant sounds, which begin to sound more like language, take over until a sort of whispered incomprehensible language occurs in a single voice. This is gradually joined by a multitude of voices and over time phrases and words become comprehensible and start to build up to form a 'cage' of instructions dictating what should be done by the woman in the house at all times of the night and day, until it becomes an incomprehensible 'solid wall' or mantra of instructions to be followed.

As we have said the main aspects of the gestural metaphor that are being used in *Hidden Lives* are those of motion and the spatial distribution of sound objects. These parameters are used in a relatively static way, unlike in *Nesting Stones,* in that there are no episodic incidents, but a steadily evolving form as the house takes shape

and the density of the sound material changes as the metaphorical heart of the house is approached. There is variety in terms of both the lightness or translucency of the material and the number of voices that can be heard at any time. The sound material is constantly filtered and edited so that different fragments of the voices remain. The progression generally moves from abstracted to concrete but the words and their meaning are never clearly stated or heard. They are always only fragmentary impressions or memories of words until they are all massed together when they become overwhelming and too dense to understand. This treatment of the sound material is, in itself, a metaphor for memory which is usually also fragmented, half remembered, half sensed or half heard. In common with *Invisible Crowds* and *Nesting Stones* the metaphors in *Hidden Lives* do not reside solely in the sound material but are a complex combination of compositional parameters.

Sound material	Conceptualisation of journey through house of memory	Textural treatment of sound material
Environmental recordings	Outside world	No processing
	Door slams on outside world	
Processed sibilants	Corridor of Memory (Architectural mimesis)	Build in density and intensity
	Latch	
Extractions of breath and mouth noises	Room of Breath (Architectural mimesis)	Dense
Extractions of Breath and mouth noises and consonants t, f, d.	Dimensions of Room of Breath grow (Architectural mimesis)	Dense, some foreground moving consonant sounds Breath fades into background
Extractions parts of words leave consonant sounds in pattern of speech. Breath disappears	Nature of Room of Breath starts to change Little fragments of memory fly around	Flying consonants get busier and denser joined by extractions of parts of words - one voice
Fewer extractions from parts of words leave sounds in pattern of speech	One story stands out, only fragments of it can be heard and not made sense of	One voice joined by more and more processed voices
Pieces of text become intelligible. All text is apparent but not entirely intelligible	Story concerns domestic life	Voices become less processed and reveal more verbal meaning until all text is spoken by many voices
Many voices mixed together	Clamour of memories to be heard	Becomes more and more dense and claustrophobic
	Fades away into outside world	
Environmental recordings	Outside world	No processing

Figure 7:6 Flow of gestural metaphor through *Hidden Lives*

7.2.2 *Scan*, sound material and metaphorical architecture.

I have already described my brief for *Scan* to produce a 'wall of sound' that had no emotional crescendo or decrescendo, no volume or tempo changes and that operated at an unvaryingly intense emotional level for about forty minutes. I have also discussed the architectural and physical spatial mimesis in *Scan* in 3.2.

Scan is a single gestural metaphor. There is no progression or development in *Scan*. The sound material does change but it is all derived from vocal sounds. The spatial and motion mimesis employed is all a second-degree metaphorical transduction of personal embodied experiences yet is conceptualised because we have little consciousness of these experiences. They are the internal and hidden workings of the body, imagined as states of constant dynamic motion with no end or destination. Gestural metaphor in *Scan* is the entire metaphorical structure. It is, in common with *Hidden Lives*, a metaphorical sonic architecture. Instead of our bodies surrounding and containing the motions and dynamics that form the basis for the image schema in *Scan*, the sonic representations of these image schema 'contain' and surround the choreographed action, the performers and audience (See *Figure 2 Loudspeaker configuration for Scan*) so that the 'inside becomes the outside' and the 'invisible is made visible'.

7.3 Conclusion

In this thesis I have been discussing the development of a compositional language based on real-world experience. This has involved the transduction of musical and non-musical experiences and perceptions of types of space, through a process of metaphorical projection, into productions of space through the creation of sound works. Some of these sound works are created for an overtly expressionist purpose and employ the use of gestural metaphor.

All of the works discussed involve a compositional use of spatial mimesis which is linked to 'real life' experiences of space. Some are observed experiences, involving mathematical, social, visual, architectural or environmental spatial mimesis,

and some are directly embodied experiences involving mental or physical mimesis. Through a process of metaphorical projection, image schema derived from these non-musical experiences of space are used to produce compositional space. The productions of space in the early pieces presented here, *Sparks in the Dark* and *Fallout,* are based on perceived, rather than embodied, experiences of space and have an extra layer of metaphorical projection to translate them into image schema[34].

Some of the later pieces presented here use physical and mental compositional spatial mimesis manifested in image schema that are metaphorically transduced from powerful embodied personal experiences. This is particularly true of *Nesting Stones* and *Invisible Crowds*, where motion, the spatial distribution of massed sound objects and gesture combined with associative sound material and the intentional expression of emotional and physical lived experiences form the gestural metaphor. The representational spaces in these pieces are of emotional and physical lived experiences, produced, as aural space, through metaphorical transduction. While *Nesting Stones* is structured according to embodied experience, *Invisible Crowds* uses spatial metaphors transduced from experiences of mental space.

The representational spaces produced in *Hidden Lives*, *Bath* and *Scan* are related to less personal experiences of space than those of *Nesting Stones* and *Invisible Crowds* but in each, aspects of gestural metaphor have been developed and redefined. *Bath* is a metaphor for the spaces of flow, immersion and floating. *Hidden Lives* is related to the enclosed and restricted space of the lives of women, and takes inspiration from both internal and social spaces, while in *Scan* the body is the site, and the space both *of* the body and *in* the body are made visible.

In the works presented the content (referential sound material), form (compositional use of spatial mimesis taken from experience of spatial practice and

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[34] This relates to the first- and second-degree metaphorical transduction referred to in Chapter 6.2. Perceived experiences of space, like mental or emotional / motion or spatial mimesis relies on a kind of *second degree,* or surrogate, metaphorical transduction in that the lived experience of the mental state needs to be transduced into a physical sensation before it can be translated into sound.

motion transduced into image schema, and anecdotal structure) and intention (expression of experienced psychological states) are inseparable, combining together to make complex representational gestalts that links the production of space in the works with my perceived, conceived and lived experience of space and embodied motion.

APPENDIX 1 NOTES RELATED TO ACCOMPANYING COMPACT DISCS AND VIDEO

WITH EXTRACTS FROM PROGRAMME NOTES

Disc 1

1. *Fallout* : 10'21"

Tape composition realised at City University.

Performances:

JIM Festival, France. 1996

Fallout is a piece of sound theatre. The 'characters' are strange and bizarre sound creatures and groups of itinerant musicians who wander in and out of the bleak sound space. The audience fills in the details.

2. Nesting Stones : 13' 41"

Tape composition realised at City University.

Performances:

Purcell Room, South Bank Centre, February 1996

Bretton Hall, Yorkshire, December 1996

Unknown Public Day, South Bank Centre, September 1996

Discoveries concert series, Aberdeen, April 1997

City University Concert Series, London, January 1998

Releases:

Sensuality: Unknown Public CD magazine Vol. 8. January, 1997

Gramophone Explorations Vol. 2 : Perspectives on Contemporary Music Gramophone Magazine May 1997

Broadcasts:

Canadian Radio, 1997

Anybody who has ever had an intense relationship with another person will know that for every positive emotion experienced there is a corresponding negative feeling. Nesting Stones is based on my feelings about my relationship with my daughter.

In this composition I am using and developing anecdotal structures and gestural metaphors harnessing the sense of spatial positioning and motion and the tension between the recognisable, the barely recognisable and the unrecognisable to explore and express the contradictions and dualities of that relationship.

The sound material for the piece is all drawn from recordings of myself and my daughter.

3. *Invisible Crowds* : 10' 04"

Tape composition realised at City University.

Performances:

Sonomorph, Red Rose Club, London. September 1996

City University Concert series, London, May 1997

ISEA 1997 (International Symposium on Electronic Arts),Chicago, USA

University of Birmingham, January 1998

Synthèse Festival, Bourges, France, June 1998

Canadian New Music series, Montreal, Canada, February 2000

Prizes:

Studio Music category: The 24th Electroacoustic Music Competition of the Institut International de Musique Electroacoustique de Bourges 1997

Broadcasts:

BBC Radio 3 Here and Now, August 2000

Invisible Crowds is about personal experiences of space, particularly mental and emotional space.

It is expressive of contradictory feelings of wanting solitude but of also wanting company; of wanting peace but being unable to stop for long enough; of

wanting the space to concentrate and work but being besieged by a thousand and one conflicting thoughts and feelings. It moves at different times from repose to restlessness and back again. The sound material is recorded exclusively from metallic objects and the rich associations of bells, alarms and gongs are used to underpin the emotional states expressed in the piece.

4. *Bath* : 10' 00"

Tape composition realised at City University.

Performances:

City University Concert series, January 1999

Kew Bridge Steam Museum, London, March 1999

Bath takes its inspiration and its source material from the sounds, motion and symbolism of water in all its manifestations.

5. *Hidden Lives* : 11'00"

Tape composition commissioned by Institut International de Musique Electroacoustique de Bourges and realised at their studios in France.

Performances:

Synthèse Festival, Bourges, France, June 1999

Private View / Public Hearing, South London Gallery, June 1999

City University Concert series, May 2000

International Computer Music Conference (ICMC), Berlin, August 2000,

Hidden Lives explores ideas of the house as the repository of memories, and of women as the curators of memory and of hidden histories. The daily repetition of domestic routine tasks is common to women in particular, across centuries, societies and cultures. Through carrying out this invisible work women have shaped and

sorted cupboards, rooms, all manner of dwelling places, the inner lives of societies and whole cosmologies. They have been confined to the inside of the house to carry out unrecognised and exhausting domestic servitude and at the same time have been able to colonise the 'inside' as their own, the place for daydreams and memories.

All the material for this piece is drawn from a selection of women reading from *The Book of Hints and Wrinkles* a small piece of social history from the 1930s which describes how women should manage both their houses and themselves in no uncertain terms. The daily routine timetable is enough to ensure that no woman could ever spend much time outside the house or away from this backbreaking schedule, and advice on personal appearance is delivered in such a way as to suggest that women are in fact part of the furnishing of the house to be polished, scrubbed and generally to look clean, welcoming and attractive.

Hidden Lives is one of a series of tape works which explore the compositional use of space and gesture as a metaphor for physical and emotional experiences. It attempts to use the distribution, motion and gesture of sound in space in order to emphasise and highlight the possible associative qualities of the recorded material according to personal experience.

Some of the specific ideas that inform the composition of *Hidden Lives* are in the treatment of the text which moves from the whispers and breaths of memory to half articulated emergent sentences to the mantra of the repetitive routine which becomes a wall of orders and commands.

The piece was commissioned by the Institut International de Musique Electroacoustique and realised in their studio in Bourges, France.

Hidden Lives is in celebration of all lives lived and forgotten.

Disc 2

***Scan*: 43'**
(31' audio + 12' audio for film as one continuous track).

Disc 3

Scan film + audio only : 12' as a Quicktime movie

Video

Video of live performance of *Scan* showing live action, film projection and sound as recorded by the video camera.

Scan is a performance-based installation work produced in collaboration with choreographer Rosemary Butcher, and visual artist, Vong Phaopanit, and commissioned by Rosemary Butcher Dance Company.

Performances:

The Jerwood Space, London, October 1999.

NOTT Dance, Nottingham, May 2000

Voorit Arts Centre, Ghent, Belgium May 2000

Kalamata International Dance Festival, Greece, July 2000

Tanzworkstatt Festival, Munich, Germany, August 2000

Gardner Arts Centre, Brighton, November 2000

University of Bath, Bath, November 2000

Tanzraum Festival, Nuremberg, Germany, February 2001

Body as Site Festival, Lausanne, Switzerland, March 2001

Dans I Dialog, Copenhagen, Denmark, March, 2001

Hayward Gallery, London, June, 2001

National Dance Project, USA, October 2001

Scan is a dance installation designed for performance in gallery spaces rather than conventional dance performance spaces. It is a collaboration between a choreographer, a visual artist who works mainly with light, and myself as composer/sound designer.

It is made to be performed in a small dark square with the audience two lines deep on the four sides and enclosed by the four loudspeakers. There are four performers who present to all sides of the square.

The entire performance consists of 31 minutes of live performance with four dancers followed by a 12 minute film which is projected onto the middle of the dance floor as the live dance performance becomes increasingly less visible and the dancers exit. Disc 2 contains the sound design for the live action followed by the sound design for the film.

Scan takes it starting point from the discovery of X-rays and the idea of the invisible being made visible. The collaborators share a mutual interest in exploring personal experience and working with a woman-centred perspective of the body's experience of space.

My brief, as sound designer was to produce a 'wall of sound' that had no emotional crescendo or decrescendo, no volume or tempo changes and that operated at an unvaryingly intense emotional level for about forty minutes.

Scan calls on the body's experience of space. This includes the space of myriads of levels of operation happening at once, largely unknown to us or hidden from us in their function of keeping us alive. *Scan* calls very much on a kind of internal physical spatial mimesis, one that is largely hidden. As a result of its uncompromising relentlessness and the fact that in performance it is indeed a 'wall of sound', it creates a virtual room or container, a kind of metaphorical body which encloses the audience so that they become part of an invisible body revealed and made manifest through sound.

The film that makes up the last twelve minutes of the performance (Disc 3) shows another version of the invisible being made manifest or the hidden becoming seen. It concentrates on two main themes, the angles and parts of the body that are not normally seen, noticed, or in some cases, recognised in the normal process of watching the performed work and it also shows the rehearsal process, the work behind the work. The film acts as a coda to the performance, and the sound design

for the film is minimal, also utilising sounds that the audience do not usually hear - instructions issued in rehearsals, feedback from the dancers, the impact of bodies on the floor, and all the small quiet sounds that are often overlooked.

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